NATIONAL FISHERMAN

NOVEMBER 1959

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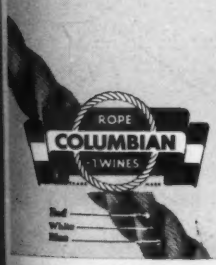


COLUMBIAN Rope Company

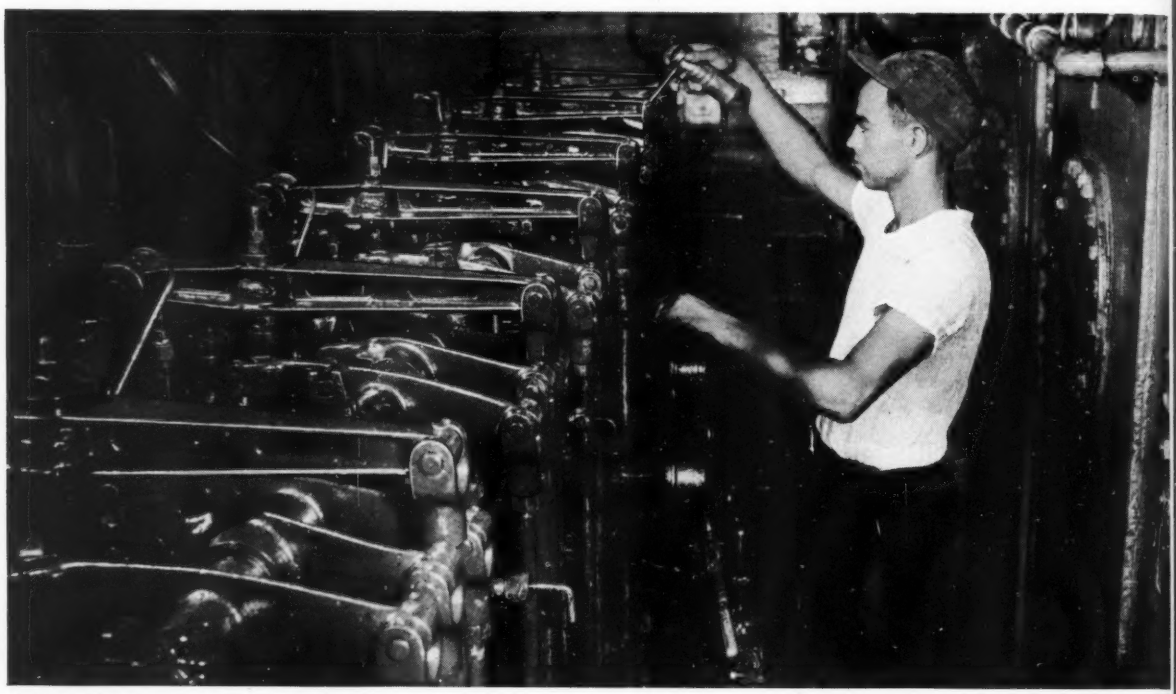
Auburn, "The Cordage City," New York

*E. I. DuPont Trademark

ENGINEER'S FIELD REPORT

PRODUCT	RPM DELO OIL
FIRM	M/V OLYMPIA Gloucester, Mass.

Engine spotless after 10,000 hours using RPM DELO Oil



Chief Engineer John Randazza (above) reports RPM DELO Oil makes a big improvement in performance of 250 hp Atlas diesel powering 105-ft. M/V Olympia. "Our previous oil plugged lines and left thick engine deposits," says Mr. Randazza. "Since changing to RPM DELO Oil we've had no plugged lines. We had the heads off after 10,000 hours' operation...the inside of the engine was spotless!"

M/V Olympia's Captain Thomas Scola (left) says, "In our kind of fishing we're out three or four days at a time, with the engine running almost constantly. In spite of this, RPM DELO Oil keeps it clean, and our oil consumption is less, too." M/V Olympia (right) fishes for whiting in summer, haddock and cod in winter.

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- Metal-adhesion qualities keep oil on engine parts, running or idle.
- Anti-oxidant resists formation of lacquer
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- Special compounds prevent corrosion of bearing metal
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169.50 PER UNIT . . . WITH P-T-T MICROPHONE AND TRANSMITTER/RECEIVER CRYSTALS FOR ONE CHANNEL.

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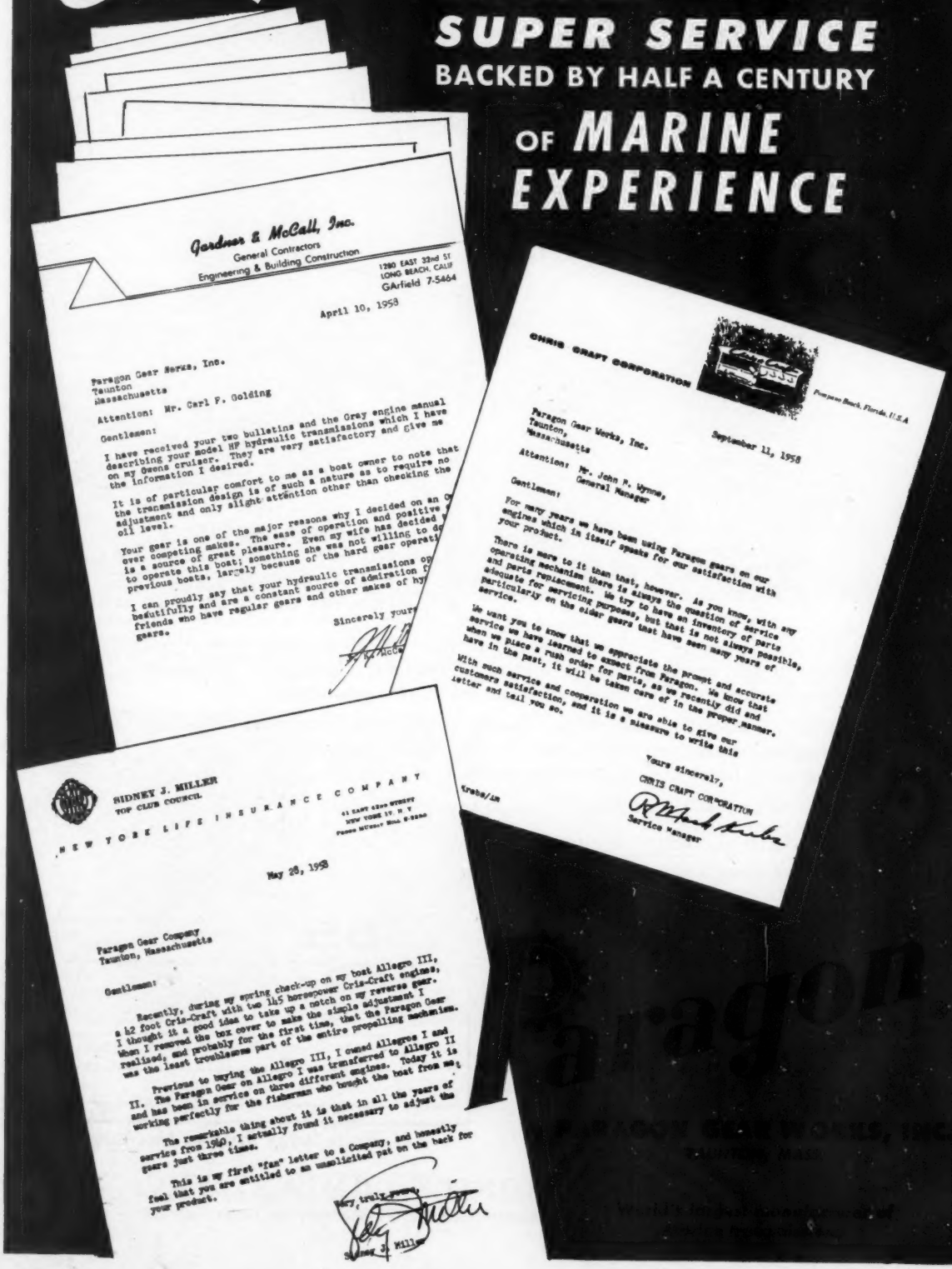

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LONG BEACH, CALIF.
GArfield 7-5464

April 10, 1958

Paragon Gear Works, Inc.
Taunton
Massachusetts

Attention: Mr. Carl F. Golding

Gentlemen:

I have received your two bulletins and the Grey engine manual describing your model HP hydraulic transmissions which I have on my Owens cruiser. They are very satisfactory and give me the information I desired.

It is of particular comfort to me as a boat owner to note that the transmission design is of such a nature as to require no adjustment and only slight attention other than checking the oil level.

Your gear is one of the major reasons why I decided on an O over competing makes. The ease of operation and positive is a source of great pleasure. Even my wife has decided to operate this boat; something she was not willing to do previous boats, largely because of the hard gear operati

I can proudly say that your hydraulic transmissions op beautifully and are a constant source of admiration f friends who have regular gears and other makes of hy gears.

Sincerely your

CHRIS CRAFT CORPORATION

Paragon Gear Works, Inc.
Taunton, Massachusetts

September 11, 1958

Attention: Mr. John F. Wynne,
General Manager

Gentlemen:

For many years we have been using Paragon gears on our engines which in itself speaks for our satisfaction with your product.

There is more to it than that, however. As you know, with any operating mechanism there is always the question of service and parts replacement. We try to have an inventory of parts adequate for servicing purposes, but that is not always possible, particularly on the older gears that have seen many years of service.

We want you to know that we appreciate the prompt and accurate service we have learned to expect from Paragon. We know that when we place a rush order for parts, as we recently did and have in the past, it will be taken care of in the proper manner.

With such service and cooperation we are able to give our customers satisfaction, and it is a pleasure to write this letter and tell you so.

Yours sincerely,
CHRIS CRAFT CORPORATION
Service Manager

trebe/lm

SIDNEY J. MILLER
TOP CLUB COUNCIL
NEW YORK LIFE INSURANCE COMPANY
41 EAST 42nd STREET
NEW YORK 17, N. Y.

May 28, 1958

Paragon Gear Company
Taunton, Massachusetts

Gentlemen:

Recently, during my spring check-up on my boat Allegro III, a 42 foot Cris-Craft with two 145 horsepower Cris-Craft engines, I thought it a good idea to take up a notch on my reverse gear. When I removed the box cover to make the simple adjustment I realized, and probably for the first time, that the Paragon Gear was the least troublesome part of the entire propelling mechanism.

Previous to buying the Allegro III, I owned Allegros I and II. The Paragon Gear on Allegro I was transferred to Allegro II and has been in service on three different engines. Today it is working perfectly for the fisherman who bought the boat from me.

The remarkable thing about it is that in all the years of service from 1940, I actually found it necessary to adjust the gears just three times.

This is my first "fan" letter to a Company, and honestly feel that you are entitled to an unsolicited pat on the back for your product.

Very truly yours,
Sidney J. Miller

The Lookout

International Salmon Study

Five American fishery scientists have made an extensive inspection of Russian salmon fisheries, and five Russian fish experts have been in the United States to observe American salmon activities, according to the Department of the Interior. The trips were arranged for an exchange of scientific and practical fishery information.

The American mission to the Russian salmon areas had a double purpose—to give U. S. specialists an opportunity to learn of Russian fishery operations first hand, and to obtain fish and fish blood samples of known Russian origin for a long-range international salmon study which has been in progress for about three years.

The North Pacific salmon study is a three-nation project—Japan, Canada and the United States. One purpose of this study is to obtain data upon which nations of Asia and North America may base salmon management plans. A specific problem is to determine the place and the extent of intermingling of the American and Asian races of salmon during the time the salmon are at sea. This in turn necessitates the development of a system of differentiating American from Asian fish. Research has indicated that probably the most reliable way to differentiate between the two races is by blood type.

At the Bureau of Commercial Fisheries Biological Laboratory in Seattle, considerable work has been done in this project on salmon and blood samples from Japan, Canada, and the United States salmon areas. No salmon of Russian origin were available for study until this exchange visit with the Russians.

At the places visited by the American group, important phases of the Russian salmon fishing industry were inspected and discussed—hatchery work, biological research, technological problems, gear research and fish processing operations. Beside the "on-the-spot" discussions, there were meetings at what might be called area or regional levels, plus four days in Moscow with the fishery research unit of the scientific committees which are in charge of research conducted in the Soviet Union.

The Russian itinerary included inspection of American salmon hatchery operations and the work of fish nutrition and fish disease laboratories in the Pacific Northwest. They saw the operations of privately owned companies, canneries, fish freezing and cold storage facilities, and inspected several government laboratories.

NATIONAL FISHERMAN

The Fishing Industry Magazine

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FISHERY PROGRESS

► U.S., Cuba Shrimp Pact

The State Department has announced that the agreement with Cuba for conservation of shrimp is now in force. The shrimp pact was approved by the U.S. Senate last June.

The agreement calls for joint studies to find out why fishermen in the Gulf of Mexico off the coasts of Cuba and Florida have been catching smaller shrimp in recent years.

Some experts figure it may be the result of commercial catching of shrimp before they reach the larger, more desirable sizes.

The shrimp pact also provides that the United States and Cuba will take necessary action to maintain the resource at the most productive level for the benefit of both countries.

► Edible Imports Down

Imports of edible fresh, frozen and processed fish and shellfish into the United States during August, 1959, decreased by 8 percent in quantity and 16.3 percent in value as compared with July, 1959.

The decrease was due primarily to lower imports of groundfish fillets (down 6.5 million pounds), frozen tuna (down 3.3 million pounds), frozen shrimp (down 2.8 million pounds), and to a lesser degree, a decrease in the imports of canned tuna in brine, and fresh frozen salmon.

Compared with August, 1958, the imports this year were down by 5.6 percent in quantity and 10.3 percent in value due to lower imports of frozen albacore and other tuna (down 7.4 million pounds), fresh and frozen salmon (down 3.0 million pounds), and frozen shrimp (down 1.5 million pounds).

► Japanese Tuna Controls

Japan's tuna industry may be moving toward either price or volume control of its exports to ease the pressure against aroused American fishery interests.

A Japanese economic newspaper noted that delegates to the recent United States-Japan tuna talks in Tokyo promised they would give advice and guidance to the industry. The implication is that both the government and the industry feel something has to be done.

► Frozen Salmon Standards

The laboratory work on frozen salmon steak standards is essentially complete and it is likely that the standards will be in effect by the beginning of 1960.

► Water Pollution Studies

A House joint resolution directing the Secretary of Health, Education, and Welfare to conduct certain studies and investigations relating to water pollution has been referred to the Committee on Public Works.

The resolution provides for a number of studies including; 1. The effects of disposing of nuclear wastes in the ocean as well as in rivers of the U. S.

2. Methods of controlling water pollution caused by disposition of sewage and garbage from ships operating in those waters.

It further provides that, based on such investigations, uniform laws be formulated for possible enactment by the states and political subdivisions to prevent pollution, and to submit to Congress proposals for correction of any water pollution problem revealed by the studies.

► Inshore Dragging Study

A scientist of the Bureau of Commercial Fisheries said recently he would be surprised if dragging inside the three-mile limit is harmful to the ocean bottom, or its fisheries.

But, scientists may run out of research funds before they can get the answer from a survey now in progress. The shortage may result despite the fact that the Saltonstall-Kennedy funds for research and market promotion come near the $3 million mark annually.

Russell T. Norris, assistant director of region 3, Bureau of Commercial Fisheries, explained this saying that Saltonstall-Kennedy funds are allotted in advance.

The Bureau is primarily concerned with offshore fisheries. Inshore fisheries problems are primarily state problems. The Bureau co-operates with the states, but does not have funds earmarked for the project.

► Crab Meat Inspection

Tentative approval was granted recently to a crab meat processing plant in Brunswick, Georgia, for use of the Department of the Interior continuous inspection shield on unfrozen crab meat.

This marks the first use of the shield on products not protected by frozen storage during transportation and marketing.

The success of this venture depends on adequate handling and rapid turnover to prevent quality deterioration while the shield remains on the package.

It is believed that such adequate handling is commercially practiced on crab meat to an extent which will allow the shield's use.

► NFI Asks Nutritional Facts

The Board of Directors, National Fisheries Institute, adopted several resolutions at their meeting last month. One recommended to the Secretary of the Interior that a program of investigation be instituted to determine, compile, and evaluate all existing information on the nutritional value of fishery products and make the information known to industry and the public.

Another recommended to the Secretary that a long-range program of market research and analysis, designed to aid industry in its marketing operations and market promotion activities, be instituted by the Bureau of Commercial Fisheries.

► Toompas on Oyster Research

Dr. Charles Toompas, biochemist, associated with George Washington University, has been appointed by the Oyster Institute of North America as representative on the Government-Industry Oyster Research Program. Toompas will study changes which take place in oysters between the time they are removed from shells and packed.

► Wallace To Interior Advisory

David H. Wallace, director, Oyster Institute of North America, Annapolis, Md., has been appointed to the Interior Dept. Advisory Committee of Fish and Wildlife. Wallace will fill the unexpired term of John Linehan, former general manager of Seafood Producers Association, New Bedford, Mass.

► Shellfish Breeding

Interior Department scientists are encouraged by initial results of experiments to improve shellfish through selective breeding.

In one year of tests, top-quality specimens of hard-shell clams grew 17 percent faster than unselected mollusks. A similar project to produce fast-growing oysters is now in progress.

If the tests prove successful, oysters may eventually be bred for taste and other desirable qualities.

► 15 Month Shrimp Storage

The frozen storage life of pink shrimp is between 9 and 15 months depending on the packaging materials and storage environment.

In tests completed by the Bureau of Commercial Fisheries, commercial packages of shrimp (peeled, deveined, and headless) were frozen individually and in block form at 0°F.

They became unmarketable after 9 months. The control sample of shrimp, which was vacuum packed with water in hermetically sealed cans and stored at —25°F, was still good after 15 months.

B.F.Goodrich

5000 B.F.Goodrich floats on newly converted seiner "Southern Pacific"

Any seine man would choose B.F.Goodrich floats

Nothing takes to seining like B.F.Goodrich floats. Made of miracle PVC, they are tough, lightweight and permanently buoyant. Practically indestructible, B.F.Goodrich floats won't break or crumble, need no maintenance and are impervious to oil, gasoline and marine growth. And they *never* waterlog to add extra weight to nets.

All these reasons have put B.F.Goodrich floats on regular seiners as well as newly converted ones. So check your supplier now — before needless maintenance and replacements start. B.F.Goodrich floats come in 17 sizes ranging from 3" x 1½" to 6" x 14".

Made under Pat. No. 2,737,503

Now available! B.F.Goodrich ring life buoys for fishing boats. U.S. Coast Guard approved and accepted by commercial lines, these rings have all the advantages of the floats.

For more information write The B. F. Goodrich Company, 592 Derby Place, Shelton, Connecticut.

B.F.Goodrich ***Spongex seine floats***

ACRONIZE PUTS YOU IN COMMAND

This food grade antibiotic keeps fish fresh; lets you return to port with a full hold and command top prices for the entire catch.

What is Acronize?

ACRONIZE® is an antibiotic made by American Cyanamid Company especially for food processing. It is the food grade of Chlortetracycline, the broad-spectrum antibiotic with proven ability to retard the multiplication of bacteria that cause fish spoilage.

Now, it has received government clearance for use on fresh-caught whole, headed, and gutted fish; shucked scallops; and unpeeled shrimp.

How Acronize works

Fish are attacked by bacteria which grow, multiply, and soon cause souring, sliming, and eventually complete spoilage.

ACRONIZE slows down reproduction of bacteria. Freshness is maintained for much longer periods. Tests on a wide range of species prove ACRONIZE keeps fish fresh and firm 50 to 100% longer.

How to use Acronize

Because ACRONIZE does *not* eliminate refrigeration, but enormously increases its efficiency, it is incorporated *in the ice*. At sea, standard icing procedure is followed.

ACRONIZE is *not* a substitute for proper sanitation. On the contrary, proper sanitation, refrigeration and ACRONIZE work together to keep that fresh caught flavor.

What Acronize can mean to you

Properly protected with ACRONIZE, fish caught early in the trip can be sold at the same top prices as those caught just before returning to port.

For more information, see your ice supplier, or write: American Cyanamid Company, Agricultural Division, New York 20, New York.

®ACRONIZE is a registered trademark for American Cyanamid Company's chlortetracycline.

CYANAMID

ACRONIZE

Testing Hydraulic Dredge for Pacific Clams

Chesapeake Bay dredging equipment could increase production for Washington clam farming program

Due to the enterprise of a Maryland clam farmer, who invented a hydraulic harvesting dredge for the soft shell clams of the Chesapeake Bay, Washington's Puget Sound may possibly yield a wealthy industry of hard shell bi-valves.

According to Milo Moore, director of the State Department of Fisheries, if all goes as planned, Washington could develop a neglected resource into a position of importance equalling its other marine resources.

It was not just a notion that moved Moore to include clam culture in the department's recently inaugurated fish farming program. He and others concerned have been aware of the signs of depletion that are present in the once-productive clam beds of Puget Sound.

Other than parasites, pollution, and predators, which are only a few of the causes of the depleted condition, there also exists a self-contradictory situation created by man. While some areas are barren from continuous overdigging, there are other places, notably private tidelands, which have become unproductive from disuse.

In this country, comparatively little was known about clam culture. The Japanese people did, however, having farmed clams as food and livelihood since way before the more lucrative business of growing oysters had been heard of.

American biologists made studies of the simple farming methods used by the Japanese clammers during post war occupation years. They were enthusiastic in their recommendations favoring adaption of these methods for American usage, but private enterprise in this country, for some reason, remained indifferent to the idea.

In Maryland, Fletcher Hanks, Jr., a clam farmer, had ideas of his own about how to cultivate clams. His ideas someday may be credited with revolutionizing the clam industry on both seaboards in the estimation of many.

Hanks invented and patented a mechanical digger, which operates below the tideline, attached to the side of a boat in an outrigger fashion. By using pressurized jets of water, the machine dredges out along the bottom a trench 18 inches deep and two and one half feet wide.

The clams are carried to the boat deck after being forced up onto a steel mesh conveyor belt by the jets of water. Men then remove the clams from the moving deck and load them into baskets. Construction of the mesh is such that sand and silt are automatically replaced into the trench, together with any undersize, seedling clams, which will grow into maturity after being redeposited.

Hanks had reported such success with his new machine that William E. Harms, operator of the Guilford Packing Company at Port Townsend, Washington, decided to experiment with the mechanical clam harvester. Harms, who was the only active clammer in the area, conducted trials with two of the dredges.

Under the careful observation of Milo Moore and Dr. Harvey McMillin, aquaculturist for the State Fisheries Department, the new clam dredges worked off Port Townsend in shallow waters four to 12 feet deep.

In the summer of 1958, Hanks went to Washington to help modify the dredges for more efficient use in that area. Harms, in turn, spent six weeks on the East Coast studying clam production methods in that part of the country.

Harms later expressed amazement at what he had seen. In New Jersey, he said there was one cannery which worked fifty boats. In a single day the company brought in about 450,000 pounds of clams. At that rate, Harms said, they could harvest more in two weeks than Washington could in a year.

In another state that had a clam growing area no larger than Skagit Bay, Harms discovered that production equalled 5,500,000 pounds of clams per year by using the dredges. Without dredges, Washington's annual total output is around 1,500,000 pounds.

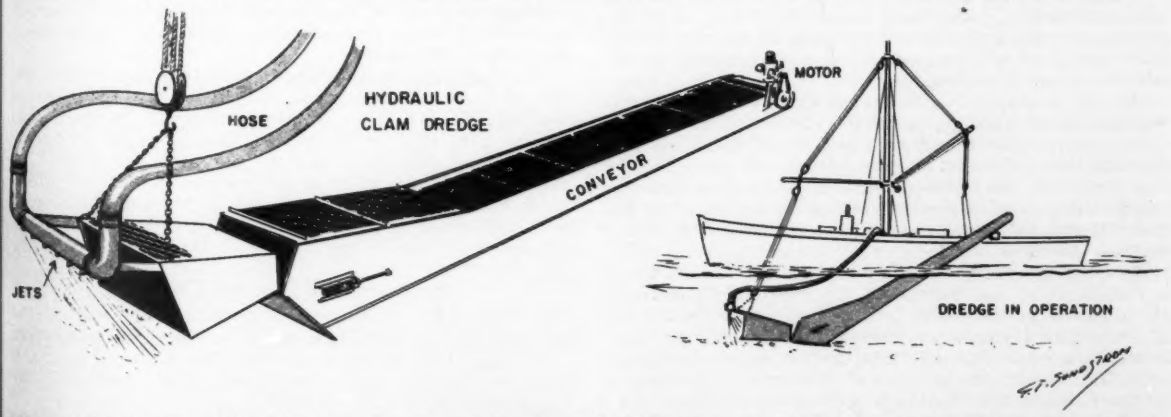
Even though all the difficulties have not been ironed out completely, nor the evaluations completed for the experiments, Harms is quite enthusiastic over commercial clamming's future in the state. The Fisheries Department is also. McMillin thinks the use of dredges can cultivate and restore clam beds to their former degree of excellence.

There are clam larvae in the water constantly, McMillin said. If the bottom land is loosened and turned over, there will be a lot of old shells and debris for the larvae to attach themselves to in the sand. If there is nothing to set to, the clam larvae will be washed away with the currents or be destroyed by underwater predators.

According to Moore, there is no reason why the state should ever run out of clams in Puget Sound. With all the mud flats and little bays, the conditions are ideal for growing clams. The important thing is to take the same kind of care with those areas as is done with oyster and salmon environments.

Where the clam seed is to come from for the State's farm program is a question frequently asked. While the introduction of new varieties is an obvious source, it has not always been successful. Further, the greater portion of the work done along this line to date has been experimental. The varieties of Japanese clams brought back from the

(*Continued on page 27*)



Hydraulic Clam dredge which is being used in an attempt to develop the Washington clam industry to a level with other state fisheries.

Seek Firm Control of Atomic Waste Disposal

Gulf States Marine Fisheries Tenth Annual Meeting emphasizes more efficient supervision of multipurpose water usage and radioactive dumping

The Tenth Annual Meeting of the Gulf States Marine Fisheries Commission, held in Corpus Christi, Texas, October 15-16, heard members and speakers express concern over the necessity of proper and efficient control of water and atomic waste disposal.

In view of the uncertainty felt by many regarding the means and results of atomic waste disposal in the sea, Dr. James B. Lackey, professor of sanitary science at the University of Florida, cautioned that sources of radioactivity must be monitored and their effects closely watched. He based his remarks on research which his department has been conducting during the past nine months.

Hermes Gautier, vice chairman of the Commission, presided in the absence, due to illness, of Howard D. Dodgen, executive secretary of the Texas Game and Fish Commission and chairman of the Gulf States Commission.

Summaries were presented by members of the Estuarine Technical Coordinating Committee. The additional information needed for its final report was listed and plans were discussed for centralizing and controlling shrimp marking experiments. Dr. George Rounsefell, Galveston, Tex., Bureau Commercial Fisheries, presented a special committee's report wherein it was recommended that a $1 reward be established for each marked shrimp returned, with the money paid from a central fund set up by the five states.

It was also recommended that the director of the Galveston Biological Laboratory be put in charge of all experiments with duties to assign marking dye colors, size and species of shrimp marked, and to approve all releases of marked shrimp.

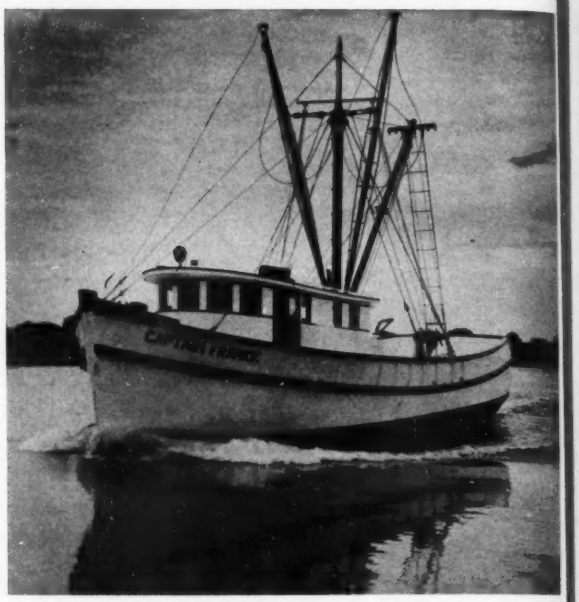
Harvey R. Bullis, Jr., Bureau of Commercial Fisheries, Pascagoula, Mississippi, presented motion pictures of the underwater study of shrimp trawls in action which were taken in the Bahamas.

A breakfast, the executive session, and a final assembly marked the close of the convention. It was decided that the 11th Annual Meeting would begin October 19, 1960 at Mobile, Alabama.

Specially prepared for the Commission's meeting was a statement of the Bureau of Commercial Fisheries on the disposal of low-level radioactive wastes in the sea. The statement explained that waste disposal problems arise as a byproduct of industrial, medical, and other scientific uses of atomic energy. It is a primary concern of the Government that such wastes be eliminated in a manner that will create no hazard to public health and welfare nor endanger natural resources. Waste materials may be classified as low-level or high-level radioactive substances.

Low-level wastes in proper packages contain extremely small quantities of activity per gallon and, in most cases, offer no danger to man even from direct exposure. High-level wastes, such as those obtained from the processing of spent reactor fuels, may contain greater quantities. These dangerous wastes are presently being stored on land until the problem of their utilization or disposal can be solved. The immediate problem concerns the disposal of low-level wastes in the marine environment, the report continued.

It is generally believed that the ocean offers many advantages over land as a means of disposing of low-level wastes. Since 1946, under the supervision of the Atomic Energy Commission, (AEC), carefully packaged materials of low-level activity have been deposited at several locations off the Pacific coast beyond the 1000-fathom line, and somewhat smaller quantities have been placed in deep water off the Atlantic coast. Very negligible amounts have gone into deep water in the Gulf of Mexico, and, up to the present time, only very small amounts of radioactive materials have been deposited on the continental shelf.



"Captain Frankie", owned by Frank Burbank of Tampa, Fla., is a 67' shrimper powered with Caterpillar D342 Diesel rated at 150 hp. She was built by Diesel Engine Sales, Inc., St. Augustine, Fla.

The Bureau's report recommends that the choice and use of these disposal areas be subject to the following limitations: (a) Prior surveys of ocean currents and marine life. (b) Limits on the total amounts of radioactivity that may be deposited per year. (c) Limits on the amount that may be deposited per month. (d) Minimum distance between sites. (e) Maximum numbers of sites per given area. (f) Specifications for waste containers. (g) Periodic monitoring of the area.

Recommended Dumping Controls

1. Protection of public health and safety and of the fishing industry should be the over-riding consideration.

2. Regardless of where or when the disposal occurs, it must be licensed and strictly controlled, preferably by one agency of the Government.

3. Comprehensive studies of the physical and biological environment must precede designation of a disposal site, and the site must be monitored after use.

4. Further laboratory studies must be conducted to determine the effects of radioactive substances on aquatic organisms and the means by which these substances may be concentrated in plants and animals and transmitted to man.

5. The Bureau favors the creation of an interagency committee which would have authority to assure that proper environmental and monitoring studies were conducted and have over-riding authority over disposal operations affecting resources under their jurisdiction.

6. Disposal of radioactive wastes in the sea is an international problem since the ocean is a dynamic system bathing many shores. There is, therefore, need for an international coordinating board such as the present inter-

national Atomic Energy Agency, but with authority to collect information on the kinds and amounts of disposal being made and power to impose limitations.

7. The years to come will see a growth in the use of atomic energy in many varied applications. The Bureau must maintain a positive attitude and approach in attempting to solve the many problems that will arise. It must devise means of perpetuating natural resources and simultaneously utilizing these new sources of power and energy.

Integration of Water Control Effort

Harry P. Burleigh, commissioner, United States Study Commission—Texas, reported to the Gulf States Convention the task of that Commission. It is he said, to establish an enduring water supply and control program for the state of Texas.

Implementation of such a program will undoubtedly have an impact on the estuarine areas along the Texas Gulf Coast. Formulation of a State water plan is one more inevitable encroachment of civilization upon marine life.

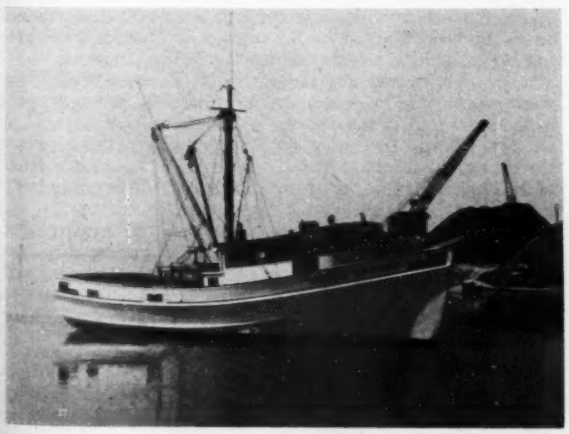
In time, reliance upon water resources has become more complicated in order to meet needs of a more complex economy. Hence, appraisal of water projects has been forced to evolve from the single purpose concept to the now generally used multi-purpose approach. Because the multi-purpose approach involves a number of responsibilities, it has led to need for integration of effort among a multitude of agencies with Congressionally assigned responsibilities.

The Senate recently organized a staff whose function will be to appraise water supply and water control programs on a national basis. The Committee will study the extent to which water resources are related to the national interest; the extent and character of water resource activities at all levels of Government.

After some study the Department of Interior recognized, and stated, that the scope of Texas water problems was indeed beyond the capability of any single agency or any single level of Government. The Department noted that practically everyone had an interest and that if solutions ultimately provided were successful everybody would benefit. Recognition of this fact led, to the creation of the United States Study Commission for Texas.

Formation and Purpose of Commission

As the tenth year of the Gulf States Marine Fisheries Commission ended with the convention, Howard D. Dodgen, chairman, in a speech delivered in his absence, felt a review of the Commission's purpose was in order.



The 58 x 18 x 7-foot shrimper, "Minnie Esther", owned by Gardner Serrill of Matagorda, Texas, is powered with a 165 hp. General Motors Diesel which turns a 46 x 34 Michigan propeller. Other equipment includes Bendix depth recorder, Plymouth rope, White compass, Stroudsburg hoist, and Northill anchor. She is finished with Woolsey paint.

Shaking out the nets to dry after a run aboard a typical Gulf states shrimp trawler.

Twelve years ago, the five Gulf Coast states, aided by the Council of State Governments, drafted articles for a Compact of States binding them to cooperate in managing their marine resources. It was subsequently approved by the several state legislatures, then ratified by the 81st Congress on May 19, 1949.

In entering this compact, Dodgen said, the members relinquished none of their rights or responsibilities to regulate or otherwise manage their own fisheries. The commission recommends to the governors and legislatures of the member states, action programs and improved laws that would be helpful to obtain maximum yields and the best utilization of marine and anadromous fishes. The basis for such recommendations comes largely from studies made by trained career people employed by the states and by the United States Department of the Interior.

"The duty of the said commission", according to the Compact Law, "shall be to make inquiry and ascertain from time to time such methods, practices, circumstances and conditions as may be disclosed for bringing about the conservation and the prevention of the depletion and physical waste of the fisheries, marine, shell and anadromous, of the Gulf Coast. The commission shall have power to recommend the coordination of the exercise of the police powers of the several states within their respective jurisdictions to promote the preservation of these fisheries and their protection against over-fishing, waste, depletion or any abuse whatsoever, and to assure a continuing yield from the fishery resources of the afore-mentioned states.

In sound management of any renewable natural resource, Dodgen continued, it is necessary to know about stocks on hand, annual production or severance, and the re-occurring annual production possibilities. To help fulfill this need, a statistical program for fishery catches has been accomplished by the Gulf States Marine Fisheries Commission.

Although this statistical program has yet to reach completely satisfactory proportions, improvements are being made, and it is felt that soon knowledge of the total poundage taken will be accompanied by details showing the units of effort necessary to harvest this annual crop. It is noted that while considerable progress was being made in getting accurate measurement of the amount of commercial and industrial fishes taken, little or no attention has been paid to the pounds taken by recreational fishermen; spot checks indicate this to be a surprising figure.

There has been a continued effort expended in improving statistical reporting. Recently, Texas had a survey conducted to ascertain, the annual harvest by resident

(Continued on page 30)

GREATER PRODUCTION, QUALITY, STORAGE BOOST

The Practicality of Freezing Fish At Sea

In recent years, much consideration has been given to freezing of fish at sea. These considerations have been influenced by the limited fish storage period in ice aboard the vessel and the need to fish farther away from home in order to return with a full payload.

Factory ships have been developed and used successfully by Great Britain, West Germany, and Russia, for processing and freezing at sea. The high cost of the vessels and the problems in obtaining crews willing to stay at sea for several months have prevented their use in the United States.

Freezing fish aboard trawlers without processing is one solution to the high costs and labor problems of factory ship operation. Such a freezing trawler would be able to return with a pay load which could be processed immediately or put into storage for future processing. One such trawler has been developed for freezing at sea without processing aboard—the *Delaware*. Operating out of Boston, Mass., she measures 148 feet long and has a gross tonnage of 303 and a cruising range of 8,000 miles.

The Freezing Method

Whole haddock are frozen in a 0°F brine immediately after they are landed on the vessel. The round fish are loaded into metal baskets located in the freezing tank, each having a capacity of 450 pounds, and are moved through the brine. Frozen in ¾ to 4 hours, depending on their size, the fish are unloaded from the tank and conveyed by a shute to the 0°F fish hold, where they are stacked by hand. An ammonia absorption system, with a 25-ton refrigeration capacity, is used in connection with two heat exchangers to provide cooling of the brine and of the frozen fish hold. Freezing capacity is 1,000 pounds per hour.

When icing fish at sea, the work must be done as soon as possible to minimize the loss of quality. On a Boston trawler, a crew of six can eviscerate, wash, and ice about 5,000 pounds within an hour after the fish are landed on deck.

In freezing methods, the fish must be handled as rapidly as in icing, or quality loss will result. On the *Delaware*, six men can sort and wash 1,000 pounds of round haddock, load, and remove an equal amount of fish from the freezer in 15 minutes. In an hour they could theoretically handle 4,000 pounds of fish, both into and out of the freezer, at slightly less than the rate for iced fish.

The *Delaware* has a freezing capacity of 1,000 pounds per hour. Not more than 3,000 pounds can be put into the freezing tank at once without increasing the brine temperature excessively. The capacity of the freezing system, therefore, must be based on the maximum catch expected within a 24-hour period. Also, sufficient quantities of brine are needed to compensate for large initial loads.

For Boston trawlers, a capacity of 2,000 to 2,500 pounds of fish per hour would be satisfactory with sufficient quantity of brine to permit loading 6,000 to 7,500 pounds. Space should be provided for icing fish in the event of extra large catches.

Storage on the Vessel

The capacity of the vessel freezing at sea is reduced over one using ice, because reduction of hold space result from the installation of cooling coils, insulation, and refrigeration equipment. Additional space required for storing frozen fish as compared with storing iced fish further reduces the quantity of fish than can be landed by the vessel.

In storing iced, gutted haddock on Boston trawlers, the ratio of fish to storage space was found to be about 45 pounds per cu. ft. The *Delaware*, before conversion to freezing, had 8,000 cu. ft. of hold space. In the conversion, this space was reduced to 600 cu. ft. for storing iced fish and 3,800 cu. ft. for frozen fish—a reduction of 45 percent. The reduction was attributed to freezing tank and brine piping, 800 cu. ft.; refrigeration machinery, 1,300 cu. ft.; and insulation, bulkheads, refrigerated pipe coils, and other miscellaneous lost space, 1,500 cu. ft.

Only 33 pounds of round brine-frozen fish could be stored per cubic foot instead of 45 for iced fish. In all, owing to the reduction of hold space and the increased space required for storing frozen fish, a total reduction from 360,000 pounds of iced fish to 125,000 pounds of frozen fish and 25,000 pounds of iced fish resulted. The total earning capacity of the *Delaware* was reduced approximately 58 percent.

That loss could be decreased by installing the refrigeration machinery in the engine room rather than in the fish hold, and by more efficient arrangement of bulkheads. This would result in an increase in the vessels storage capacity from 125,000 to 185,000 pounds. The earning power of the boat would then be reduced 42 percent instead of 58.

In evaluating icing or freezing, the extent that maximum capacity is utilized when handling iced fish in comparison with that of the converted vessel must be considered. Many vessels of the *Delaware's* size operate at 30 to 40 percent of their maximum capacity. The *Delaware* can utilize its hold space fully, every trip, and thereby operate at 42 percent of its maximum iced fish capacity, as now outfitted.

Theoretically she has a higher level of productivity than many existing trawlers using ice. For proper evaluation the increased productivity must be weighed against increased costs associated with freezing.

Unloading Compared

In unloading iced fish from a large Boston trawler, fish are loaded from pens to baskets with a 150 to 175 pound capacity. The baskets are hoisted to the dock, and the fish are dumped into a weight box mounted on a simple platform scale. Two scales are used to weigh out the fish being unloaded through each of the two hatches. The fish are then hauled to the plant for filleting. Sixteen men—six in the hold, four on deck, and six on the dock—unload a large trawler at a rate of 30,000 pounds per hour.

To unload frozen fish from the *Delaware*, the fish are transferred by hand into unloading baskets, hoisted to the dock and dumped into boxes of 500 pound capacity. The fish are glazed by spraying with fresh water and are transferred by mechanical lift trucks to the cold storage plant. Each lot is weighed on a large platform scale prior to storage.

The weight of frozen fish loaded by an experienced crew averages 85 pounds per basket, considerably less than the 150 to 175 pounds for iced fish. This decrease and the additional time required to transfer the fish to baskets reduces the unloading rate. Fourteen men can unload the *Delaware* at 15,000 pounds per hour—a reduction of 50 percent compared with iced fish. Thus, twice the time is required to unload.

The quantity of fish unloaded per hour from the *Delaware* could be increased by more efficient arrangement of the fish hold and through the use of elevator-type conveyors which can transfer the fish directly into a cold store located on the dock. It is doubtful these methods would increase the rate to compare favorably with that for iced fish.

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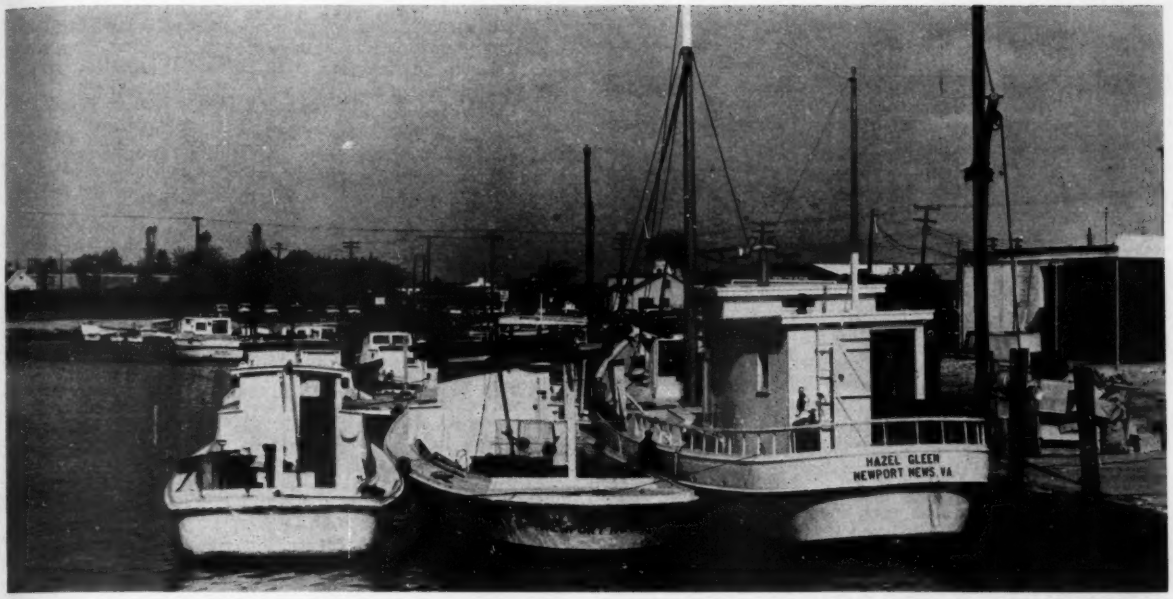
From material presented by Joseph W. Slavin, acting chief, North Atlantic Technological Research, Bureau Commercial Fisheries, Boston, Mass., at the 2nd World Fishing Boat Congress.



Typical crab boats at Newport News, Virginia. Center, the crab potter "L. F. Gaskins" owned by Edward Hall; right, the 55' crab dredger "Hazel Gleen" owned by Tidewater Crab Co., Inc. and powered by a 4-71 General Motors Diesel.

Chesapeake, Stronghold of Blue Crab Fishery

During the last ten years, Chesapeake Bay has had an average, annual blue crab production of about 60 million pounds, valued currently at approximately three million dollars. This is nearly two-thirds of the entire United States blue crab harvest.

The 4,000 square miles of the Chesapeake Bay and tidal tributaries, from the James River to Pocomoke Sound and beyond, form one of the great blue-crab nurseries of the world.

The Chesapeake Bay industry receives substantial competition from States to the south, but to the north, blue-crab production is of comparatively minor proportions. Warmer winters in the Southern Atlantic and Gulf assure a steadier supply of hard crabs than in Chesapeake Bay, but in the matter of soft crabs the Bay remains supreme. It contains vast areas offering nearly ideal conditions to molting crabs, and excellent conditions for their capture, such as shallow, sheltered waters with a smooth bottom.

Blue crabs appear on the market in two principal forms, hard and soft shell. The hard shell crab contains delicious meat, which is difficult to extract. Therefore, the meat is usually picked from the shell in shore plants by professional pickers, and graded for sale. The soft crab, having shed its hard shell, is shipped alive in special protective packing. A third form, "peelers", are hard crabs preparing to molt, or shed their shells, in the course of growth. In commercial records they are classed with soft crabs. They are used by hook-and-line fishermen for bait.

Generally, soft crabs are produced by holding "peeler" crabs on floats until they shed. The peeler crabs' claws are broken or "nicked," so that they will not bite one another, and the crabs are placed in baskets or in a live well. The well is constructed to permit circulation of water in a watertight section of the boat.

Peeler crabs show a series of color changes, known as "signs" around the ends of the swimming paddles, which indicate roughly the time interval before the next shedding. The "white line" appears ten days before shedding, the "pink line" five days, and the "red line" two days. The catch of peelers is taken directly to a pound and they are sorted according to their "sign". The floats are tended at four to six hour intervals, day and night, keeping cannabalism to a minimum. When shedding has actually begun, the crabs are referred to as "busters". After the newly shed crabs have hardened for four or five hours for protective purposes, they are packed in trays of eel grass and crushed ice, boxed, and shipped.

Catching Gear

The gear used in the capture of crabs are several, and vary widely in principle. Hard crabs are caught mainly by trotline and crab pot. The trotline consists of a length

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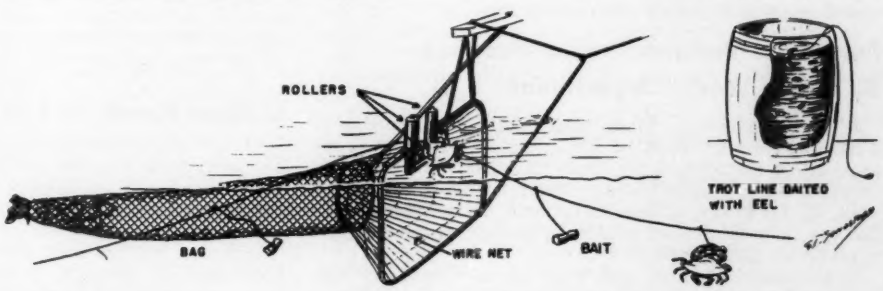


Patent crab trot line gear used in Chesapeake Bay blue crab fishing. The equipment is supported from a boom which is lowered alongside the boat. As the trot line passes through the rollers the crabs fall off and drop into the submerged bag.

NORTH ATLANTIC

New Bedford Landings Up For Nine Month Period

One of the best swordfish years in the history of the port, marked increases in sea scallop landings, and larger catches of groundfish and yellowtail flounder have combined to inject an added $2,115,000 into the economy of New Bedford, Mass.

The figure represents a difference in value of fishery products landed at New Bedford during the first nine months of 1959 compared with the same peroid of 1958—one of the fishing industry's best years at the port in more than a decade.

Recently released figures show that through September, value of all seafood landed at the port totaled $12,537,000. During the same span last year, the value was $10,422,000.

Landings of cod and haddock through September totaled 13,624,000 pounds valued at $1,313,000 compared with 10,960,000 pounds valued at $988,000, unloaded during the same period last year.

Landings of swordfish this year have totaled 574,000 pounds, valued at $186,000. Last year, another banner year for harpooning broadbills, 481,000 pounds valued at $171,000 were landed.

Landings of sea scallops continued to highlight the city's fishing industry, totaling 1,989,000 pounds valued at $872,000 for September. For the first nine months, scallops totaled 14,284,000 pounds with a value of $7,236,000. During the like period last year they totaled 12,014,000 pounds for a value of $5,643,000.

Landings of yellowtail flounder through September totaled 15,754,000 pounds worth $1,713,000. Landings are slightly over last year with the value raised by $300,000.

Total foodfish landings at New Bedford, with three months remaining in the year, add up to 55,247,000 pounds valued at $12,273,000. During the identical time last year, food fish landings totaling 50,304,000 pounds were valued at $10,142,000.

Bay Scallops Bring Record Prices

Commercial bay scallopers in New Bedford, Mass., were lured to sparsely populated scallop fishing grounds by one of the highest prices paid for shucked scallops in the area's history. Wholesale price per gallon for bay scallops averaged about $11.25 to $12 from the season opening. Highest paid last year was $7 a gallon.

Scarcity of the shellfish has caused fewer fishermen to take out commercial scalloping permits this year and the overall bay scallop yield has been low.

Meanwhile, New Bedford quahoggers who took part in the State-sponsored, transplanting program have completed profitable work. Figures show that fishermen earned more than $22,500 for the 8,105 bushels of quahogs taken from contaminated water in the city.

The quahogs were eventually purchased by other communities in the state for transplanting. The program ended recently when all orders were filled.

Fairhaven Shellfish Project Dropped By Public Works Department

Plans by Fairhaven, Mass., which call for the cutting of a channel through the West Island Causeway to aid propagation of shellfish, have been dropped by the State Department of Public Works. Chairman, Walter J. Borowicz, of the Board of Selectmen, said he had been notified orally, with written confirmation due on the decision to eliminate the $39,400 project.

The channel through the West Island Causeway had been recommended as late as September by the Division of Waterways of the DPW, Borowicz said, and the contract for the work had actually been awarded. The work called for the excavation of a part of the causeway and the construction of a bridge over the new channel.

When the causeway was rebuilt after the 1954 hurricane, a culvert system was installed. It soon became clogged with sand and tide-moved debris, and the present plans were devised to overcome the problem. The plans reportedly have been discarded as unfeasible.

New Bedford Receives Large Cod Landing

The largest single-day landing of cod at New Bedford, Mass., in more than a year was unloaded October 7 from eight draggers. A total of ten draggers brought in 314,800 pounds of fish, including 242,000 pounds of cod.

Claims Scallops Harvested Too Early

This year's record breaking, New Bedford, Mass., sea scallop landings could have been increased 60 percent, if the scallops had been left in the water one more year, according to Dr. J. Arthur Posgay, director, scallop investigations, U. S. Fish and Wildlife Service, Woods Hole, Mass.

Posgay explained that the scallops landed this year came from an area with a high concentration of four-year-olds. It is from the fourth to fifth year that the scallops mature most rapidly, increasing approximately 60 percent in size, he said.

Fairhaven Firms Denied Building Licenses

The Massachusetts Governor's Council voted last month to postpone action indefinately on licenses for the Kelley Dock and Marine Company, Inc., and Frank C. Taylor, Inc., both of Fairhaven, to construct piers in the Acushnet River.

The Kelley concern had applied to the State Public Works Department for a license to build a marine railway, three timber piers, and drive single mooring piles in the Acushnet River. The Taylor concern applied to construct a timber pier and a stone retaining wall and to dredge and fill in the River at their location in Fairhaven.

New Bedford Lumpers, Producers Sign Pact

A new one-year contract which includes changes in the wage for unloading scallops was signed recently by officials of the New Bedford Producers Association and Local 1749, Fish Lumpers Union. The contract affecting more than 100 lumpers and the owners of over 85 vessels in the New Bedford fleet, expires September 1, 1960.

The new wage rate is $10 for unloading up to 11,220 pounds of scallops from a vessel, and $1 for each 1,000 pounds above that figure. Under the old contract lumpers were paid $10 for unloading a scalloper regardless of the size of the catch. This agreement was drawn up when the average trip was 11,000 pounds. Earlier this year, some scallopers landed more than 20,000 pounds.

Robert J. Swain

Robert J. Swain, a delegate to the New Bedford Fishermen's Association, died last month at his home in New Bedford, Mass. Swain served four terms as port delegate of the Atlantic Fishermen's Union.

O'Hara Handling Life Rafts

F. J. O'Hara Trawling Co., 211 Northern Ave., Boston, has been made a dealer for Seafarer Inflatable Life Rafts. Several rafts are on display and a service station will be established in the near future.

Erling Moe, a partner of Capt. A. J. Pedersen, U.S. distributor for Seafarer, now is in training at the Seafarer factory. Moe is studying production methods as well as service and inspection procedure.

Suggests Tax Waiver to Solve Gloucester Pier Problem

John Ryan of Brookline and Shore Road, Magnolia, Mass., and president of the Gloucester Ice and Cold Storage Company and Dehydrating Process Company of Gloucester, Inc., says the directors of the State Fish Pier in Gloucester, Mass., should ask for a waiver of real estate taxes on pier properties.

Principal tenant of the pier, Ryan said the directors should get together with the State Department of Public Works and have the latter go to the State Legislature with a special bill to waive the taxes. There were such bills on the Howard Johnson Restaurant and the Atlantic Filling Station on Route 128, he said.

The legislation, to which Ryan referred, was contained in a bill in a message from Governor Furcolo, which recommended that the real estate owned by the Commonwealth and used for abutting service facilities by the restaurant and station on limited access highways shall not be subject to taxation. The legislation became a resolve referred to a study because of the opposition from towns fearing loss of tax revenue.

Shrimp Survey Made in Gulf of Maine

Commercial concentrations of red shrimp were not found to be available in the deep water areas surveyed recently by the Bureau of Commercial Fisheries research vessel, *Delaware,* in the Gulf of Maine.

Seventy-one tows were made in the Gulf and off Nova Scotia. The areas surveyed ranged from 75 to 160 fathoms deep. A standard 40-foot Gulf shrimp trawl was used as sampling gear on 66 tows. Five tows were made with standard 100-foot Gulf trawl in the Jefferys Ledge area.

The most productive area was at Jefferys Ledge in 90 to 150 fathoms. The best catch there yielded 35 pounds. The existence of a widely scattered shrimp population in the western part of the Gulf of Maine was indicated by the consistent catch of small quantities of shrimp during most tows.

New Electronic Gear for Seal Cove Boat

The 31′ boat *Elizabeth* operated by Seal Cove Marine, Seal Cove, Me., has been equipped with Sperry Radar 5 (12-volt), MRT65 Munston radiotelephone and Sonar D120 depth indicator. The equipment was sold by the Harris Co., Portland.

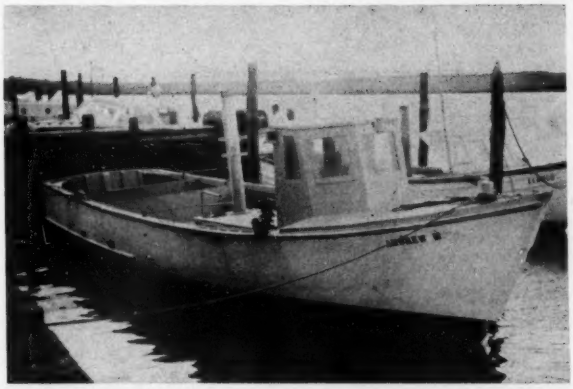
Maine Boat Gets New Engines, Life Raft

The 115′, former Gloucester dragger *Maris Stella* is being repowered by her new owner, Harold Gowen of Portland, Me. She is getting new D397 Caterpillar Diesel 500 hp. turbocharged main engine and D318 Caterpillar Diesel 165 hp. turbocharged winch engine. She will carry an 8-man Seafarer inflatable life raft in fiberglass stowage container. A similar raft of 7-man size has been placed aboard Gowen's dragger *Theresa R.*

Allied Diesel Handling American Marc

Allied Diesel Sales & Service, Inc., 332 Congress St., Boston, Mass., has been made distributor for American Marc air and water cooled, marine and industrial Diesels and generators sets of 7 to 15 hp. Their territory includes New Hampshire, Massachusetts, Rhode Island and Connecticut, and dealer appointments are being made.

Allied Diesel also handles the Allis-Chalmers Diesel line, Mercedes-Benz Diesels from 36-2000 hp., Lathrop engines from 30-165 hp., and Lister Diesels. Affiliated concerns are G & K Diesel Service and Boston Diesel Service, which specialize in Diesel injection work.



The 32′ lobster boat "Andrew M.", owned by Samuel Matkovich of Beach Haven, N. J. is powered with a 115 hp. Chrysler Crown engine turning a 21 x 22 Columbian propeller through 2.5:1 reduction gear. She uses Gulf fuel and lubricating oils and has Exide batteries and Columbian cordage.

Gloucester Men Plan Action Against Maine Whiting Moves

The Gloucester (Mass.) Whiting Association's attorney, C. Richard Clark, recently warned a Maine official that any attempt to discriminate against Gloucester fishermen will be fought in the courts. Clark acted in response to preparations in Maine to consider new legislation restricting fishing in waters frequented by the Gloucester fishing fleet.

Clark's letter to Ronald Green, commissioner of Sea and Shore Fisheries in Maine, called attention to Article 4, Section 2 of the United States Constitution, where it is provided that "citizens of each state shall be entitled to all the privileges and immunities of citizens of the several states."

In other words, Clark contends, Maine can not pass a fishing law that would give its own fishermen special privileges. He also made it a point that whiting caught by Gloucester fishermen along the coast of New England is shipped out of Massachusetts, and thus is an article used for interstate commerce. Individual states are not allowed to interfere with interstate commerce, Clark said.

Meanwhile, Maine opposition to Gloucester-style fishing for whiting in the Casco Bay area stiffened. At a meeting in the Governor's office at Augusta, Me., proposals for a new state law to restrict the spread size of nets and their doors were discussed. Also mentioned was a proposal to ban fishing on Sunday.

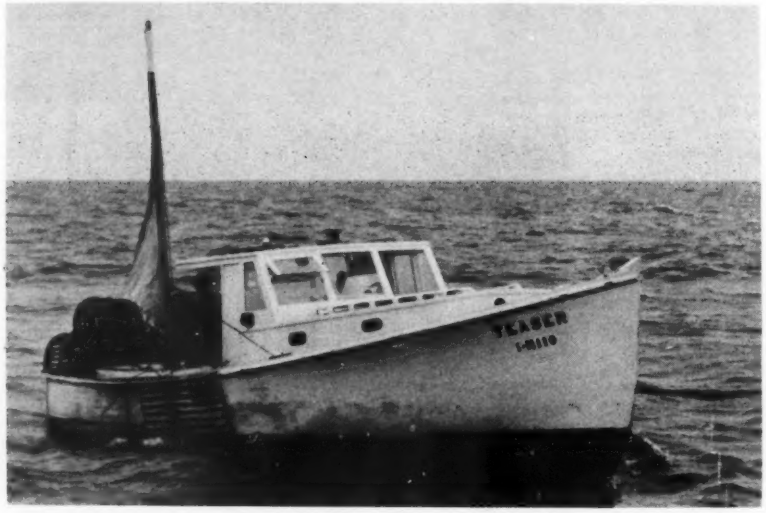
Representative Edward C. Miller of Portland, Me., is reported ready to sponsor a bill, calling for a new law to protect fishermen using boats smaller than those that now make Gloucester the country's biggest producer of whiting. The bill represents recommendations of the Associated Fisheries of Maine.

Governor Crosson's office said the Governor did not take a position on the merits of the proposals, but merely said he would suggest to party leaders that they consider such a bill, if there is a special session. The meeting in the Governor's office was for the purpose of arranging the mechanics of considering a regulatory bill in case of such a session.

The next regular session does not meet until a year from next January, but there has been talk of a special session to take up various matters.

Referring to good fishing by Gloucester's whiting fleet last summer, Miller said it had definitely upset the economy of the area. He said while Maine's use of little boats was unorthodox it was a matter of economy rather than of conservation.

Asked if the proposed maximum size of nets would



A Maine lobster boat owned by Capt. Ira Tupper of Vinalhaven, Maine, is the "Teaser", which measures 34 feet in length and is powered with a General Motors 87 hp. engine furnished by Hubbs Engine Company.

mean that Maine boats could continue to use their nets while Gloucester men would have to cut theirs down or buy new ones, Miller said his bill would not be discriminatory, but would set forth regulations that would apply to all.

Boats Hauled at Portland Yard

Story Marine Railway, So. Portland, Me. has had several fishing vessels hauled out at its yard during the past month. The 118 ft *North Sea*, owned by A. F. Amory & Son, Phoebus, Va., received bottom painting and was fitted with a new intermediate shaft. Henderson & Johnson copper paint was used on all the vessels painted.

The 45 ft. dragger *Little Challenger*, owned by Norman Olsen of Cape Elizabeth, was hauled for bottom painting and stern post caulking. The 35 ft. lobster boat *Skipper* was cleaned and painted. The *Maurice Davis* of the Harris Co. fleet had her hull cleaned, caulked and painted, propeller reconditioned and new shaft installed.

The 70 ft. *Voyager*, owned by J. Frank Topping, Newport News, Va., which has been fishing for E. C. Palmer, had her spare propeller reconditioned and installed, as well as getting a renewing and refastening job on her fish sheathing.

Story did a sizable job on the 110 ft. steel trawler *Quincy*, operated by Willard-Daggett of Portland. New ¼" steel plate was welded over a 60 ft. area on both sides of the hull underbody, the surface of which was power-chipped. Her bottom was refinished with marine red lead and copper paint, the propeller guard was repaired, zincs renewed and her fish hold was cleaned and sprayed with white paint. Willard-Daggett's trawler *Winthrop* was equipped with a new Tobin Bronze shaft.

Heavy Damage To Maine Lobster Pots

A Port Clyde Fishing Company operator said that lobster trap damage from a recent gale seemed worse than in previous hurricanes. Traps were brought in as tangled masses of gear, after being driven ashore, and buoys, warp, and toggles, broken away from traps, were tangled in many places. The weekend storm rose so rapidly that fishermen could not take up their traps.

New Engines for Maine Boats

Several new engines have been sold recently for fishing boats by Harbor Supply Oil Co. Inc. of Portland, Me. Capt. Alger Burgess of Chebeague Island has installed a D-273 Allis-Chalmers 85 hp. Diesel with Snow-Nabstedt 2:1 reduction gear in his 38' trawler.

Capt. Harold Morton of So. Bristol, Me. has repowered his 38' lobster boat with a 185 hp. Flagship engine with Paragon 2:1 hydraulic reduction gear. A similar engine has gone into the 36' lobster boat owned by Capt. Alston Robbins who is president of the Stonington Lobstermen's Cooperative. Harbor Supply furnished a 100 hp. Meteor Red Wing engine with direct drive Paragon gear and Twin Disc power take-off for the 30' lobster boat owned by Capt. Guy Lunt of Frenchboro, Me.

Rhode Island Quahoging Good

One quahoger made $40 for three hours work and 85 others realized $25 to $50 for six hours tonging and raking on two Rhode Island quahog transplant sections when they were opened to commercial fishermen for nine hours last month.

There were about 155 men on the Greenwich Bay area off Folly Landing in the Cowesett section of Warwick. Another 20 worked the section opened at North Cove in Wickford. Digging was best in the Greenwich Bay area.

Little necks sold for $15 a bushel with larger chowder sized quahogs bringing $3.50. A Fish and Game Division spokesman said he did not know when the areas would be opened again.

Rhode Island Port Seeks Waterfront Study

The Rhode Island Development Council has raised questions about the need for state pier in Newport and problems of acquiring land in conjunction with its development. The Council has suggested that a waterfront survey be made to determine what facilities are presently available, their degree of use, location, and convenience.

Joseph C. Gray, city planner, noted that the city's plans for pier development call for land east of the new waterfront street to be devoted to new commercial development. Ernest Friday, chief of the planning division of the development council, raised questions about the legal implications of the state taking the land for theoretical public purpose, with the intention of reselling it for private use.

Friday submitted a report making other suggestions. These included: A survey to determine the kind, quantity, and space requirements for waterborne commerce and possible future needs; A waterfront land-use study to fit the facilities and related accommodations to be provided, into an integrated development; A review of previous plans to update the program and arrive at estimations of construction cost, revenues, and operating costs; and A survey to determine the feasibility of providing facilities for processing of fish for commercial fishermen.

Gray has suggested that the land-use studies and development plan for the entire harbor and waterfront are property planning board considerations.

Fish Radioactivity to be Monitored in California

Increased concern for the possible hazards of atomic energy on California's ocean fish has prompted the Department of Fish and Game to establish a position to deal with radioactive contamination, Director William E. Warne announced recently.

The new position, supervisor of radioactive monitoring and surveillance, will be filled by Harold Bissell, who has a wide background in biochemistry, chemistry, game and marine invertebrate zoology.

"The increased activity in the radioactive field in California makes it necessary that the Department determine what is happening to the fish resources," Warne stated. "The fact that aquatic and marine organisms have a unique property of concentrating radioactive materials makes this area one of very great concern."

Several areas of concern have already made themselves apparent, Warne noted. Certain shellfish off northern California are reported to have radioactive levels many times over the background level of their environment. Some mollusks of southern California likewise are reported to have "warmed up."

The Department will work with other State agencies, particularly the Departments of Public Health, Water Resources, Agriculture and Industrial Welfare. Analytical work will be carried out in cooperation with the California State Disaster Office. The Department's program will be under the Marine Resources Branch in Sacramento.

Fishermen Attempt Direct Consumer Sales As California Albacore Season Closes

Albacore fishing came to an end along the Pacific coast late in October. Local boats from Moss Landing still were bringing in small loads but the combination of poor weather and a price drop to $275 a ton in the south made further trips more of a gamble than most fishermen were willing to take. Overall the year was a good one, particularly for those who were out on the grounds early and received the San Pedro price of $425 a ton.

An effort by fishermen, in protest against low cannery prices, to sell their catches directly to consumers in San Francisco, last month, was moderately successful. Capt. John Pastorino, skipper of the *A. J. Larocca* organized a group of skippers for this sale to the public. He announced that a coastwide meeting of fishermen would be called to seek legislation protecting the domestic tuna industry from foreign imports.

In the first sale, some 15,000 pounds of albacore was snapped up quickly by housewives at 25 cents a pound. Pastorino, who led a similar protest in 1951, said he and four other boats are trying to force tuna prices paid by the canneries up to $500 a ton—exactly what 25 cents a pound adds up to. The canneries are presently offering $250 to $275 a ton. Pastorino said about 300 tuna boats operating off the Northern California coast might eventually sell direct to consumers.

Fisheries Bureau San Francisco Office

The U.S. Bureau of Commercial Fisheries has established a San Francisco office for the first time in its history, to handle inspection of fish canning production lines. The office presently has one inspector, Frank Allhands. Later the staff will be enlarged. Fish cannery inspection was assumed by the Bureau of Commercial Fisheries in June, 1958, taking over from the Department of Agriculture.

"Lanola", 50-foot troller owned by Jack McCarthy of Sebastopol, Cal. is powered by a General Motors 6-71 engine and has Kaar radio and direction finder.

Pacific Marine Fisheries Commission Meeting Scheduled For California

The annual meeting of the Pacific Marine Fisheries Commission was scheduled for the Hotel Bellevue, San Francisco, California, on November 16, 17 and 18, 1959. A detailed agenda was to be available at the meeting. The session of November 16 was scheduled as a general review of the status and conditions of the principal marine fisheries of the west coast during 1959.

Following this, detailed discussions of regulation, research, and management of the individual fisheries of interstate concern, and opportunity for interested persons to present recommendations with respect there to, were programmed.

Southern California Fisheries Group Elects New Officers

The October meeting of the Southern California Fisheries Association was held at Los Angeles to announce officers elected for the ensuing year. Joseph Sulentor is the new president, A. M. Nott the new vice-president. Selected as treasurer was Dick Numamoto while the secretary is Bart A. Ghio.

Local programming for Fish and Seafood Week was outlined at the meeting and J. E. Brenton, chief State Bureau of Weights and Measures, advised the group of specific provisions in the Business and Professions Code relating to mollusks and crustaceans. A report on the latest weights and measures developments was given.

Moss Landing Development Plans

Moss Landing, California harbor commissioners have approved a long range development program with a request for $1,200,000 from the California State Division of small craft harbors. The money would be used to convert Moss Landing into a major shipping and recreational area. Plans include the building of about 500 boat slips in the north and south harbors where revenue from commercial uses is expected to finance repayments.

If state officials are convinced the project is financially practical, the loan is virtually a certainty, engineer James W. Dunham from the division of small craft harbors told the commissioners. Preliminary draft calls for boat-berthing facilities in the north and south harbors,

a deep water terminal for boats at the inner harbor, a residential marina five miles inland on Elkhorn slough and development of Kirby park farther up the slough.

The south harbor would have 174 slips for fishing boats and would be used for commercial purposes. The north harbor would have 226 berths.

The engineer said that the state's harbor facilities are being expanded continually to meet the needs of increasing population and commerce. Moss Landing, he said offers an excellent site for development.

New West Coast Decca Representative

Decca Radar, Inc., 386 Park Ave. So., New York City, announces the completion of a reorganization program on the West Coast, following the appointment of Benrad, Inc., of San Pedro as their official representatives for the Los Angeles area. Benrad, Inc., is a new company whose management and staff have many years of experience in marine radar. They are equipped to give service to Decca Radar users, and will handle the sale of Decca Radar in Southern California.

Boatowners are also served on the West Coast by Decca Radar, Inc., through Cascade Electronics, San Francisco; General Electronics, Portland, Oregon; and the Radar Electric Company of Seattle, Washington.

Fisheries Inspection at Bellingham

Lot inspection of fishery products is now available through the Bureau of Commercial Fisheries in the Bellingham, Washington, area with the establishment of Department of the Interior inspectors at that city. Lot inspection and certification services for fishery products was provided previously in the area by the Department of Agriculture.

California Hatcheries Using Dry Feed

Director William E. Warne of the California Department of Fish and Game disclosed recently that California's hatcheries are now feeding prepared dry feeds exclusively to trout and salmon, except for brood stock. "It is expected that this program will save many thousands of dollars a year in production costs and there are indications that the dry food produces better fish," Warne said. Wet feeds on hand will be utilized until the supply is exhausted.

Because of the many and varied experiments involved in perfecting dry feeds to its present state, a considerable amount of time was involved in its development. First experiments began in the mid-1930's. War conditions halted the work, but it resumed in earnest in 1950.

The long range goal was to evolve the proper formula to be used, and even today the same type of feed is not fed to all fish. Water and other conditions vary from hatchery to hatchery and these had to be taken into consideration, along with the biology of the fishes themselves, and the age and size at which they will accept dry feed.

Last year, 2,160,000 pounds of dry feed were used in hatcheries and this year more than 2,500,000 pounds will be used. Pound for pound, the cost of dry feed is about the same as wet feed, which has consisted mainly of liver and fish, Warne noted. But, it requires 4.4 pounds of wet feed to produce a pound of trout, while only 1.8 pounds of dry feed are needed. The dry feed will also provide for more efficient hatchery operation. Dry feeds are easier to store and handle, as well as being much easier to feed the fish. Experiments will be made soon to determine whether the dry feed is safe for brood stock. So far, it has been demonstrated that dry feed produces hatchery trout with better color and health.

Seattle October Landings Rise

The Seattle, Wash., halibut fleet in October 1959 topped the corresponding month of 1958 by 574,600 pounds to total 1,374,700 pounds. The increase was due mainly to a rise in halibut of 391,800 pounds; in sablefish of 176,500 pounds; in rockfish of 4,000 pounds; and in lingcod of 2,300 pounds.

The Seattle otter trawl fishery showed a gain of 78,000 pounds over October 1958 for a total catch of 1,319,600 pounds. Responsible were rises in lingcod, 89,600 pounds; rockfish, 39,400 pounds; ocean perch, 94,200 pounds; and sole, 83,000 pounds. This also represents a rise of 439,100 pounds over September, 1959.

Washington Eggs to Give Japan New Fish

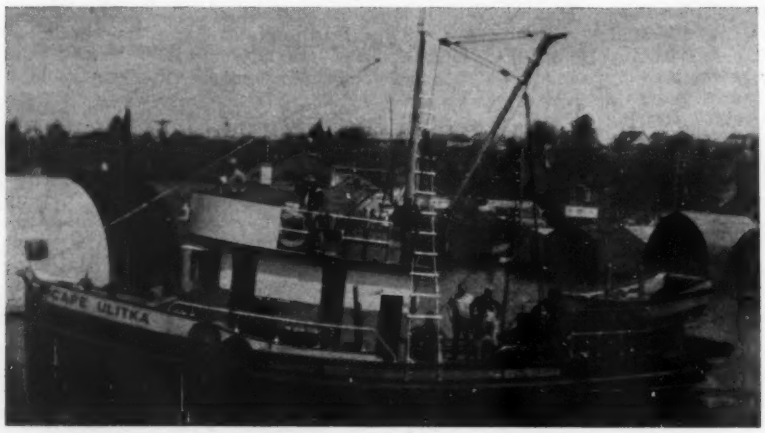
One-hundred-thousand chinook-salmon eggs, sent to Japan by the Washington Department of Fisheries recently, arrived in perfect condition, Gov. Rosellini was informed in a letter from Kenjiro Nishimura, director of the Japanese Fisheries Agency. Japan does not now have any chinook salmon. The species disappeared from Japanese waters many years ago, according to Milo Moore, director of Washington fisheries.

The Washington eggs, shipped from Seattle and carried free by Japan Air Lines, are being incubated at the Chitose hatchery on Hokkaido Island. The eggs were sent as an 80th-anniversary gift to the Hokkaido hatcheries.

Japanese, U.S. Unions Hold Talks On Conservation Principles

Representatives of Japanese and American labor unions vitally interested in North Pacific salmon-fishery problems pledged themselves, recently, to seek solutions that will be mutually satisfactory and will conserve the salmon resources. The labor representatives met in Seattle, Wash. late in September.

Their meeting was in advance of a meeting of the International North Pacific Fisheries Commission, representing Japan, Canada and the United States, which is



The "Cape Ulitka", Puget Sound drum seiner owned by Stanley T. Rome, is Alaska limit and powered by a 165 hp. Gray Diesel turning a 42 x 27 Coolidge propeller at a cruising speed of 8 knots.

wrestling with the problem of Japanese fishing of salmon spawned in Alaska.

The purpose of the conference was to promote a better understanding of conservation principles and the need of keeping the salmon resource in the North Pacific Ocean on a sustained-yield basis. It is mutually agreed that an exchange of views will continue in the future.

Alaska Trap Ban to High Court

Alaska has asked the Supreme Court of the United States to dismiss an appeal by three Indian villages for the right to use fish traps. The villages—Kake, Angoon, and Metlakatla—appealed August 20 for a review of a District Court ruling dismissing their pleas for the use of the traps.

The villages were granted a restraining order July 11 by Associate Justice Brennan, allowing them to use the traps this season despite a state ban. Since the fishing season ended August 24 and the villages did use their traps, the state said the injunctive relief sought by appellants is no longer necessary.

The villages argued that under Alaska-statehood laws, the federal government retains control over fishing and wildlife until January 1, 1960. It was under this authority the Secretary of Interior allowed use of the fish traps by the three villages this year.

Hearing For Alaska Fishing Regulations

Proposals to regulate the 1960 commercial fishing season in Alaska were published by the state about October 15, Clarence Anderson, fish and game commissioner announced. The proposed regulations were scheduled for a public hearing in Juneau, November 18, and probably will be made effective January 1.

Alaska will assume control of its fish and game resources January 1. There won't be a great deal of radical change between the old federal and the new state regulations, Anderson said, unless the board decides on some major revisions not now foreseen.

Oregon Takes First Silver Salmon Eggs From Eagle Creek Spawning Operations

Egg-taking from the first adult silver salmon has started at the Eagle Creek, Oregon, fish cultural station, the Department of the Interior announced recently. More than 750,000 eggs of a potential 5,000,000 have been collected so far, the Fish and Wildlife Service reported. The station, is operated as part of the Columbia River Fishery Development program which is supervised by the Bureau of Commercial Fisheries.

The adult silvers from which the eggs are being collected are the first to return to the hatchery since it started operations in 1956. This new run results from fingerlings reared at the station and released in the spring of 1958.

The returning adults are the survivors of 450,000 six-inch fingerlings released in mid-March, 1958. The fingerlings were spawned from eggs collected at the Cedar Creek hatchery of the Oregon Fish Commission in 1956. The Cedar Creek hatchery is also one of 18 hatcheries in the Columbia River Fishery Development program. Total weight of the fingerlings released last year was about 23,000 pounds. Returning adults weigh in at an average six pounds each.

Fish and Wildlife Service officials point to the Eagle Creek hatchery as one of the finest in the system. It is particularly valuable because its location and equipment make it possible to run constant checks on the production returns.

Fyke nets are placed across the mouth of Eagle Creek to determine the rate of down-stream migration when fingerlings are released and an electronic fish counting installation at the ladder over the lower falls of Eagle Creek make it possible to get an accurate count of returning adults, some of which may not enter the hatchery ponds but may spawn naturally in the creek.

SOUTH ATLANTIC

"MISS WANDO" is owned by F. J. Murphy of Wando, S. C. The 67' boat is powered by a 210 hp. 6-110 General Motors Diesel turning a 50 x 44 Columbian propeller. Her equipment includes Yocam batteries, Delco-Remy generator, Petter PAZI Diesel light plant, and Winpower generator. She was built by Diesel Engine Sales, Inc., St. Augustine, Fla.

Virginia Oyster Leasing To Be Studied by Governor

Governor J. Lindsay Almond, Jr., plans to seek a study of the Virginia Advisory Legislative Council into the State's oyster leasing procedures. Thousands of acres of state-owned oyster grounds are leased to oystermen at annual rates of from 50 cents to $1 an acre under terms allowing the lease-holders to renew the contracts indefinitely.

The leases are often bought and sold on the open market for $1,000 to $1,500 an acre, and Governor Almond thinks that the state is not getting what it should have in the deal. The Virginia Fisheries Commission is asking substantial money to fight a virus which has harmed oyster beds in other Atlantic areas, and Gov. Almond says it is particularly important now that Virginia get something approaching fair value for its leases.

Milton H. Hickman, State Fisheries Commissioner, brought the subject to the Governor's attention at recent budget hearings. Hickman said that the state should consider raising the rental fees to more realistic levels or fix the leases for shorter periods of time. The state, he said, on occasion, has had to pay claims arising from channel or other improvements by the state or Federal Government.

Close Oyster Beds To Help Spat

The Virginia Fisheries Commission has closed public oyster grounds on which shells have been recently planted. Commissioner Milton T. Hickman announced that the closing was to promote the growth of this season's strike of oyster spat.

At a recent meeting of oyster planters in Wachapreague, closing of all public grounds was proposed, but Hickman explained that such a move could not be made in the time available. Areas in both bay and sea sides of the peninsula are included in the closing order.

Virginia Tongers Start Season Well

The James River, Va., oyster seed beds opened to the public in October, but because of high winds, considerably fewer tongers were present than are usually on hand on this first day of the eight-month season. Those who came, gathered a rich harvest—estimated between 75-150 bushels per tong-boat, valued at 75 cents per bushel.

Hampton Roads Pound Net Catches Up

October 1959 landings for the Hampton Roads, Va., pound net fishery amounted to 901,000 pounds compared to 447,700 pounds for the like month of 1958. Gray seatrout increased by 49,200 pounds for a total of 96,700 pounds. Spot rose to 456,100 pounds, an increase of 211,500 pounds. Bluefish climbed 18,800 pounds for 26,700 pounds, while croakers at 220,100 pounds showed a gain of 214,700 pounds. Dragger landings showed an increase in the catch of fluke of 8,700 pounds over October 1958, for a total of 50,900 pounds.

Draggers Return from North

By the first of November, all but three of the Virginia draggers operating in Northern waters had returned to their home ports for winter fishing. The large dragger fleet remains the same size as last year, with one addition and one loss. The dragger *Courier*, which had been out of Portland, Me., was purchased recently by Frank Quinn of Hampton; B. F. Amory's *South Sea* of Hampton sank this summer.

Isaac Fass, Inc. at Portsmouth is handling 12 large draggers, plus 8-15 small draggers, depending on their movements to Southern ports. Porgie production is reported good, and fishermen are looking forward to the sea bass season which should be in full swing by the end of this month.

Chesapeake Costing Money Says Tidewater Commission

Talbot County watermen were told, recently, that the Chesapeake Bay and its tributaries is costing the State of Maryland money, rather than being the rich source of income for which it has the potential.

The statement was made by Jerry Valliant, vice-chairman of the Tidewater Fisheries Commission, at a meeting at Oxford of Commission members and watermen.

"The Chesapeake Bay is one of the finest bodies of water in the country and conditions there are favorable for the production of all kinds of seafood," Valliant said. "Nature put an abundant supply of seafood there, but we can not take, and take, and take, without putting back.

"We must take care of ourselves in this industry. We must have seed oysters, and we must have land in the bay on which to produce seed oysters. One of the main reasons why the TFC is visiting Maryland counties is to find out just where the best places are to establish seed beds."

A discussion period followed, over the advisability of establishing seed beds in Harris Creek, and near Royston Island in Talbot County.

It was the concensus that: The oyster season should be the same for all counties; The culling law which is now in effect is as good as it can be; and The local watermen should have more of a voice in where shells are to be planted.

Fishing Fair At Cambridge

Cambridge, Maryland, will be the site of the 1960 Chesapeake Fishing Fair. Elected president of the fair association was Captain Amos Creighton of Cambridge, who has been associated with the Fair since its inception. He announced that the Fair would be held sometime before September 1, 1960.

Tidewater Commission Tours Virginia

Headed by Dr. H. C. Byrd, Chairman of Maryland's Tidewater Fisheries Commission, a group of 20 members from a special committee set up to study bay fishery problems were on hand for opening day of the rich James River seed beds. On their way from Annapolis, the group toured packing plants at Crisfield, Md. and met with packers. They inspected planting grounds off Tangier Island to study a method of planting oysters the islanders are experimenting with that follows systems used by the Japanese.

"The Japanese", Dr. Byrd said, "are growing full-size oysters in 10 to 12 months where it takes us three years." The system is a method of tying oyster shells on a string to provide a place for the spat or baby oyster to grow, Dr. Byrd explained.

In the Newport News, Va., area, the party inspected crab picking plants and in Norfolk they were greatly impressed with the operations of the Miles and Ballard Oyster Co. operations. The Miles plant employs 749 persons, which according to Dr. Byrd is a larger number than that of watermen in some of the Tidewater, Md. counties.

The party saw oysters taken from beds in the water to the shucking tables at the plant almost entirely by mechanical means. One dredge boat can harvest up to 4,000 bushels of oysters in two hours, they learned. This load is transferred to a conveyor belt which routes it to floor trucks and then down chutes to tables where the oysters are shucked.

Dr. Byrd said he plans to invite the entire legislative council on a similar excursion to Virginia later in the year so that it will have a better understanding of the TFC's rehabilitation plans when they are presented to the 1960 legislature.

Virginia and Maryland Governors To Meet on Potomac River Pact

Governor Almond of Virginia and Governor Tawes of Maryland were scheduled to meet November 5, to discuss their two states' Potomac River Pact. The session was scheduled for the Hotel Mayflower in Washington, D. C.

The main purpose of their talks is to seek agreement on further proceedings in the suit Virginia brought against Maryland two years ago in the United States Supreme Court. The case has been delayed—and apparently settled—by enactment of a new compact vesting control of the Potomac in a bi-state commission.

Since the Virginia and Maryland Legislatures adopted the compact, a group of Maryland watermen has attacked the compact and demanded a referendum on its acceptance or rejection by Maryland voters. The referendum will be held in November 1960.

Meanwhile, the two states were to report by November 16 of this year to Stanley F. Reed, retired Supreme Court Justice who is serving as a special master in the litigation. It appears that Virginia may agree to a year's postponement in the suit to await the outcome of the Maryland referendum.

Holland Straits Seed For Public Planting As Well As Private

Dr. H. C. Byrd, of the Maryland Tidewater Fisheries Commission, promised a group of 300 Somerset County watermen recently, that private planting is not going to supersede them in seeding or anything else.

Byrd made the statement after Ray Dorsey of Crisfield asked whether seed oysters from Holland Straits would be sold to private planters before being put on public grounds.

Byrd also told the group that the Commission hopes to meet with a council of watermen before Christmas to lay plans before them for approval prior to making any attempt to put them into operation.

Several of the watermen raised objection to Commis-

Shrimping and Fishing boats tied up at Atlantic, North Carolina

sion plans for developing a rich seed area in Holland Straits off Somerset County. They claimed they could not make a decent living with the Straits closed.

Another matter discussed was the proposed opening of the Potomac River to patent tongs. Oystermen from Smith Island, and other areas of Somerset County, have long sought such action. Several watermen opposed it on grounds that it would endanger the oyster beds.

Maryland Studies Oyster Dredge Crop

Oyster biologists were set, last month, for a two-week exploration of the oyster crop in the Chesapeake Bay and its tributaries. Ralph Hammer, biologist with the Tidewater Fisheries Commission, said the major purpose was to determine how many oysters are available to dredgers. The dredging season was scheduled to open November 1.

The study was to be a cooperative venture by the TFC, the Chesapeake Biological Laboratory at Solomons, and the Fish and Wildlife Service, each of which was to designate two biologists to work with Hammer.

Hammer said the group, working a patrol vessel, would determine how good an oyster set Maryland received this year and examine State planting grounds in Chesapeake Bay, the Choptank River, Tangier Sound, and the Potomac River.

Sailboat dredging is permitted in all those areas except the Potomac, where harvesting is limited to the use of hand tongs. Hammer said a more detailed study will be made later of the deep-water oysters in the Potomac. The group expects to find generally improved conditions over last year.

Latest Red Tide Outbreak Receding in Florida Area

A red tide outbreak stretching from St. Petersburg, Florida, to points a hundred miles south began breaking up recently in one area off Fort Myers. Biologists working out of the State Marine Laboratory at St. Petersburg, said the area off San Carlos Island appeared to be clearing, although patches of dead fish continued moving north-west toward Sanibel Island.

Dr. Robert F. Hutton, biologist in charge of the State Board of Conservation marine laboratory, said the outbreak was sighted and chartered late last month by a conservation board plane. He said the outbreak of deadfish was generally seven to ten miles offshore and extended from St. Petersburg Beach to Venice.

He said the tide was not serious, so far, and explained that a good stiff northwester would probably break up the concentrations of the microscopic organisms which cause the red tide.

Florida Shrimpers Fish Off Honduras

Fort Myers, Florida, shrimpers have begun fishing with excellent early results in Honduran waters, it was learned recently from Fred Julrich, a major operator locally.

Julrich is president and only representative of this country in Camaronera y Pesquera Yojoa, a Honduran company granted a permit to fish by the Honduras government. Four trawlers from Honduran waters have returned with heavy catches to be processed in Fort Myers.

Other trawlers are en route to the new fishing area and the fleet will be built up to at least 20 boats to round out a profitable operation, Julrich said. Asked whether the Honduran shrimping would reverberate throughout the U. S. industry, Julrich said it would create a ripple but nothing great.

But, it will be important to Fort Myers, pumping blood into the shrimp processing and shipping industry, during the five slow months.

Davis Replaces Watson in N. C. Fisheries Association

A major change has taken place in the administration of the North Carolina Fisheries Association. President Roy Watson has given up the intense activity he has been conducting for the group due to an eye condition that has forced him to curtail his travel.

Vice-president Charles Davis of Beaufort has stepped in to carry on in Watson's place. Watson will be available for counsel and information drawn from his experience in the commercial fishing industry.

North Carolina Opens Oyster Season

The season for taking oysters from waters under the control of North Carolina opened in October for all but a few sections. Some of the closed areas will be opened later in the season, which closes next March 1.

C. G. Holland, state Fisheries Commissioner, said Bay River will remain closed. Jones Bay, Mouse Harbor, and Oyster Creek, all in Pamlico, were to be opened shortly after the other areas, but for tonging only.

Able, Deep, and Shell Bays in Hyde County will be closed to oystering, as will Back Bay, Turnegin Bay, and Point of Marsh area in Carteret. South River in Carteret will be open to tonging only.

All polluted areas in Morehead City and Beaufort will be closed to oystering at all times Holland said. Reminding oystermen that all boats must be properly licensed, Holland said that ten extra oyster inspectors were on duty in the producing areas.

GULF OF MEXICO

Alabama Fish Law Revisions Approved by House Committee

Bills to revise Alabama seafood laws have been placed on the House calendar after the Conservation Committee granted recent approval to a series of regulation changes. The action was taken at the request of Rep. John A. Murphy of Mobile, co-author of the bills, and John M. Tyson, former state representative who is now attorney for the town of Bayou la Batre, the center of Alabama's seafood industry. The men told the committee that the revised proposals will help re-establish the Alabama seafood industry as one of the strongest in the nation.

The bills would: Allow the dredging (taking by rake dredges) of live oysters at any time of the year on private reefs, provided the reef owner obtains a dredging license from the Conservation Department, posts a $1,000 bond and agrees to put up $20 a day if the department decides to put an inspector aboard the dredge apparatus. The bill makes no change in the existing prohibition against dredging on public reefs;

Specify that revenues received by the Seafood Division of the Conservation Department cannot be transferred to any purpose other than the work of that division; Restrict commercial fishing boats to use of trawls not exceeding 50 ft. in length; Direct the Conservation Department to patrol private oyster reefs as well as public beds; Allow the taking of smaller-size oysters than now permitted;

Revise laws regulating the taking of bait shrimp by: (1) restricting the catch to five pounds per person on each bait boat, or 15 pounds for the boat, whichever is lesser, (2) requiring a shrimp dealer's license of $25 and an additional fee of $50 for each boat operated for bait catching, (3) limiting each bait boat to one net or trawl;

Revise laws regulating license taxes on operation of commercial shrimp boats, and establishing the following schedule: On all seines up to 30 ft., $7.50 per year; from 30 to 300 ft., $15; from 300 to 900 ft., $22.50; over 900 ft., $37.50; on all trawls up to 30 ft., $7.50; trawls up to and including 50 ft., $15. Only one trawl may be operated from each boat and no trawl in excess of 50 ft. may be used, except a test trawl not exceeding eight feet may be used at the same time.

New Oyster Shell Handling Method Sought in Alabama

A new method of handling shells is being sought by the Alabama Seafood Division to increase oyster production in Alabama waters. George W. Allen, chief of the division, said many small oysters and spat are being lost because they are not replanted fast enough when taken from the water on live oysters.

Under the present program, a certain percentage of shells from oyster catches are kept by oyster sheds and processors until the Seafood Division can pick them up and replant them, usually in the spring months.

"We hope to work out some kind of a program whereby the shells with small oysters and spat on them can be replanted within 24 hours", Allen said. "We don't know exactly how we can work out such a program." He added that any program of this type will require the support and cooperation of the entire oyster industry. "A program like that would increase the oyster production tremendously," Allen said.

Allen said a recent check of oyster reefs where shells were planted last August and September show "a tremendous amount of spat." The shells were planted by the division off Barron Point in Mississippi Sound.

Delay Alabama Pogy Boat Bill

Bayou La Batre, Ala., leaders have been mapping future plans to fight a proposed bill that would prohibit catching or transporting trash fish in Alabama waters.

A meeting on the Pogy Boat Bill was held in Mobile last month, when opponents and supporters of the bill testified before members of the Mobile County legislative delegation. The bill was introduced in the House by Rep. Joseph M. Hocklander and Rep. Charles Trimmier.

The proposed bill, in its present form, would eliminate a fish meal plant planned for the Bayou that would use trash fish in its operation.

Bayou Mayor, J. A. Wintzell and Lloyd Smith, president of the Bayou Chamber of Commerce, said they had contacted Rep. Homer Cornett of Russell County, chairman of the House Conservation Committee, after the hearing. They said Rep. Cornett assured them that further action on the bill will be held up pending further study of the controversy over the measure.

Charter boat skippers operating out of Bayou la Batre, speaking on the problem, recently answered claims that pogy fishing harms sport fish. Another skipper, Capt. Earl Bryant said, "There's no use picking on the pogy boats. They don't hurt sports fishing. The pogy boats are not at all responsible for fish washing up on the beaches. Those fish come from deep sea shrimpers and if they had a plant to use the trash fish they wouldn't have to throw them away. We might as well be fair about it."

Hold Up Perdido Bay Bridge Construction

Work was temporarily stopped recently on construction of a new highway bridge across Perdido Bay (Alabama) pass after a decision was made to increase the vertical clearance of the span. The bridge was originally designed for a clearance of approximately 24 ft. vertically above the channel from Perdido Bay into the Gulf. The Highway Department and Department of Conservation with Baldwin County are dredging a new channel through the pass so that boats may navigate the treacherous pass more easily.

William C. Younger, director of conservation, had said that the Department of Conservation was in favor of raising the bridge. An attempt is being made to turn the channel project over to the U.S. Army Corps of Engineers for maintenance after completion.

Due to the size of dredges operated by the Engineers, any bridge they maintain must have a vertical clearance of at least 35 ft. The Perdido Bay bridge clearance will be increased from 24 to 36 ft., highway officials said, which will meet Engineer requirements should they take over the channel maintenance.

Mexicans Seize Texas Shrimp Boats

A Mexican gunboat fired shots across the bow of the Texas shrimp boat *Saratoga* last month, seized it and escorted it to Tampico, Mexico.

It was the second recent seizure of a United States shrimper. The *Patti June*, out of Brownsville, was seized recently and taken to Tampico, where it was put in $1600 bond.

O. P. Smith, skipper of the *Saratoga*, out of Port Isabel, radioed the W.B.P. Shrimp Producers Corp. which owns the boat, that he was running before a storm—not shrimping—when the gunboat fired across his bow.

Can Close Texas Coast Waters to Dredges

Howard Dodgen, executive secretary of the Texas Game and Fish Commission, has been given authority to close any coastal waters to oyster dredgers, when biological studies indicate this need. Similar authority was previously granted the secretary to close reefs in the Galveston Bay area.

The Texas oyster season normally extends from Sept. 1 to March 31. In Chambers and Galveston counties it extends from Nov. 1 to March 31.

Port Mansfield Channel Approved

The Intracoastal Waterway channel at Port Mansfield, Texas, was among the projects approved in the Public Works Bill, with appropriations confirmed over the President's veto. A total of $146,250 will be used to pay for dredging a channel with necessary appurtenances to connect the Port Mansfield boat basin with the Intracoastal Canal.

Immediately after the completion of the 3.5 million-dollar channel, ship basin and dredging project to the Gulf by the Navigation District, and its acceptance by the Board of Army Engineers, a hurricane struck in the locality. High tides filled the channels with sand, blocking all commercial shipping, and leaving the facilities cut off from navigable waters.

Fishing License Issue Nears 1958 Mark

Tommy Richardson, license deputy at Aransas Pass, Texas, for the Texas Game and Fish Commission, reported 265 commercial Gulf shrimp boat licenses and 429 commercial fishing licenses had been issued up to September 15.

Last year 259 licenses were issued to both Gulf and bay shrimp boats, and 498 commercial fishermen's licenses were bought. Under the new law, commercial bay-bait shrimp boat licenses do not expire until March 1, 1960.

Recommend Fish Passes at Laguna Madre

Locations for two possible fish passes in the upper Laguna Madre, Texas, area were recommended in an engineering report made public by the State Fish and Game Commission. One opening would be made near the old Corpus Christi Pass area, and the other at Boggy Slough opposite Baffin Bay.

These projects are necessary to obtain maximum water circulation between Laguna Madre and the Gulf, and to reduce salinity in the Laguna by 50 per cent, according to a report made to the Commission. It was recommended that one not be built without the other. The estimated cost of the projects is in excess of 4 million dollars. The report is now being considered by the Commission.

Texas Moves Redfish, Trout to Lake Kemp for Rough Fish Control Test

A total of 1,382 redfish and 184 speckled trout have been transplanted from coastal waters to Lake Kemp by the Texas Game and Fish Commission. These fish were placed in the lake's brackish water as an experiment, with the hope they will survive, since they could aid greatly in the control of rough fish because of their predacious nature. Results of these unusual stockings are still unknown. Efforts to recover some of the fish in nets failed. Reports from fishermen indicate that the fish have survived, but checks have been inconclusive since positive identification of remains was impossible. In other instances, the fish had been released.

Lake Kemp fishermen are being asked to cooperate in the project. They can help by keeping any fish which they suspect of being one of the marine species and presenting it to a game warden, gate keeper, or biologist for positive identification.

Rockport Celebrates Cedar Bayou Day

Cedar Bayou Day was celebrated at Rockport, Texas, late in September with festivities at Mills Wharf, about 20 miles south of the fish pass. Honored guests included members of the Texas Game and Fish Commission, representatives of the Commission at Rockport, and others who made a cruise to the pass and inspected the work recently completed on the $198,000 dredging contract. The pass was reported to be working properly on a high tide.

115' menhaden seiner "Alabama" owned by Wallace M. Quinn Fisheries, Pascagoula, Miss. of which James E. McGrath is manager. A twin-screw vessel, she was recently repowered with Model 21000 Allis-Chalmers turbocharged Diesels, each rated 230 shp. continuous at 1800 rpm. Three-blade, 52 x 35 propellers are driven through Capitol 3.88:1 reduction gears. Her skipper is Capt. Edward Rice.

Texas Shrimp Landings Up 30 Percent

Shrimp landings at selected Texas Gulf ports for September totaled 9.7 million pounds (heads off), an increase of 30 percent over the same month in 1958. Shrimp sizes had improved over the previous month, 51 percent grading in 26-35 count.

Bay shrimping has been average. Two Brothers Shrimp Co. of Ingleside is processing the catch from 20 to 30 bay trawlers. Conditions are reported good.

See Mississippi Oyster Shell Shortage

The Mississippi Seafood Commission says 32 oyster dealers are shy 5,199 barrels of oyster shells and the state needs them for spring planting. Commission secretary, Elmer Gautier, said shells of oysters dredged from Mississippi reefs are nontransferable property of the state and must be returned.

The commission uses the shells for helping grow more oysters. Gautier said the 32 companies have been notified to return the shells or replace them with shells from this year's dredging.

Mississippi Seafood Group Buys Boat

The Mississippi Seafood Commission has accepted a bid of $1,988.50 plus a trade-in, for an outboard patrol boat from Willis Marine Mart in Pascagoula.

The boat the commission is trading in is a 14-ft. boat with an 18 hp. outboard motor. The new boat will be 16 ft. long and will be powered by two 25 hp. outboard motors. Chief Inspector Clarence Canaan said the new boat will be faster, more versatile and more economical.

Gulf Nine-month Seafood Landings

Landings of seafoods at selected Gulf ports for the first nine months of 1959 compared with landings during the same period in 1958, show that oysters at 376,300 barrels increased 14 percent. Edible finfish were 6.8 million pounds, for an increase of 7.5 percent, and Shrimp (heads off) reported at 66.8 million pounds for an increase of 4 percent.

GREAT LAKES

Whitefish Comeback Seen In Lake Huron Region

Strong indications that the whitefish are staging a comeback in Lake Huron is the hottest news in more than a decade to commercial fishermen of that region.

Reports reaching Bay Port, Mich., on Saginaw Bay, an area that in years past has been one of the prime whitefish producing regions of the lake, indicate that the catch of this prized fish took a jump all over Lake Huron this season and that immature whitefish were in abundance.

Henry Engelhard, an official of the Bay Port Fishing Co., says that all reports indicate that the whitefish have had a big hatch and will be ready for harvesting in 1960-61.

John Gillingham, of the Gillingham Fish Co., also of Bay Port, agrees that prospects look good for the coming year. He doesn't expect the peak production of the past, but hopes for a good supply of whitefish.

The last big whitefish catches in Lake Huron were made in 1947 and 1948. Michigan commercial fishermen alone took 3,023,000 pounds in 1947 and 2,972,000 pounds the following year.

New Trout a Good Sign

The catching of a 10-inch lake trout in Lake Michigan, off Arcadia, in a net set for chubs, recently, caused excitement and speculation in commercial fishing circles.

Frankfort fishermen, who took the small trout, said it was the first they had caught in six years and regard it as a good sign.

Since the little fish was not finclipped and lacked other markings of being planted, this means that at least a few adult lake trout are still present and have spawned.

Trout in Lake Superior showed scant natural reproduction, this past summer.

The *Cisco*, U. S. Fish & Wildlife Service vessel, making studies similar to those made six years ago, found only a very few young of the year, according to Sven A. Hill, Baraga, Mich.

Hill, a member of the Lake Superior Advisory Committee for the Great Lakes Fisheries Commission, reported that six years ago lots of young lake trout were found.

Twenty-nine Lake Superior streams have been treated with chemicals to kill the immature sea lampreys living in them, Hill reported.

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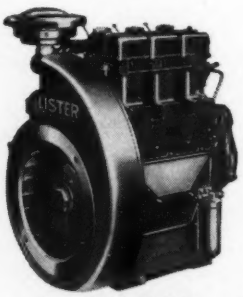

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Would Use as Chub Feed

The question of whether trawling on Lake Michigan is good or bad was argued by about 60 commercial fishermen at a meeting held in Port Washington, Wisconsin, last month.

At the meeting, some gill net fishermen charged that trawling would clean out all the fish in the lakes, and suggested that the trawlers grind up their shad catch and dump it over the side for chub feed.

Supporters of trawling asserted that trawling will bring a reduction in trash fish, sold for animal foods, and will enhance the chances for an increase in chubs, whitefish and possibly lake trout.

The meeting was called by Dr. Edward Schneberger, superintendent of fisheries for the Wisconsin Conservation Department. The department has issued a few permits for commercial trawling on Lakes Michigan and Winnebago.

The State Conservation Department has supported limited trawling in the belief that reducing the number of trash fish will be beneficial to other species. Schneberger called the Port Washington meeting to obtain the views of commercial fishermen.

Erie Perch, Sheepshead Up

Canadian figures for Lake Erie 1958 show perch with an increase of 29% to 15,469,000 pounds landed, over 1957. Sheepshead more than doubled to 1,682,000 pounds and catfish increased 38% to 286,000 pounds. Smelt reported showed a slight decrease to 4,115,000 pounds.

Northern Inland Waters produced a record 7,553,000 pounds of fish, 39% above a comparable 1957 figure. All important species showed increases. Yellow pickerel production gained 49% to 2,079,000 pounds. Whitefish taken increased 22% to 1,776,000 pounds. Northern pike landings were up 59% to 1,039,000 pounds. Lake trout production increased 19% to 261,000 pounds and sturgeon 63% to 134,000 pounds.

Other increases were noted in tullibee, up from 251,000 pounds to 438,000; saugers, up from 29,000 to 48,000 pounds; suckers 1,145,000 pounds, and ling, 528,000 pounds.

Lake Huron production more than doubled in 1958 to 1,985,000 pounds with a ten-fold increase in perch landed at 736,000 pounds reported. Chub taken rose from 305,000 pounds to 693,000; whitefish increased from 88,000 pounds to 108,000.

Lake Superior showed a slight increase in total catch to 2,802,000 pounds. Lake trout landings increased 23% from 313,000 pounds to 385,000, saugers 35% to 93,000 pounds, and herring to 1,662,000 pounds.

North Channel (connecting Lakes Superior and Huron) production increased 21% to 314,000 pounds, with a 69% rise in whitefish landed, up from 103,000 pounds to 174,000.

Fish and Seafood Week Success for Fifth Year

The nation's commercial fisheries, in cooperation with the Government, through the Bureau of Commercial Fisheries, named October 19 through 25 as National Fish and Seafood Week, to call attention to the 200 fishery products available for American dinner tables. F. M. Bundy, Gorton's of Gloucester (Mass.) was chairman of the committee directing the 5th annual promotion.

The national program was again geared to tie in with local campaigns, and according to reports from all over the country, enthusiasm ran high. The Timmy Tar emblem was once again incorporated in local advertising; merchandising display mobiles and cards appeared in retail stores; and local committees sponsored press functions.

On the national level, the Bureau of Commercial Fisheries made use of its field staff and home economists to distribute recipes, cookery leaflets, and photographs. They prepared special bulletins containing information about fish cookery to distribute to food editors; flyers for school lunch dieticians and managers, and for chefs and directors responsible for volume feeding; long playing records for radio stations and public-service announcements for television stations.

The National Fish and Seafood Week Committee nationally distributed color and black and white photos, releases with recipes to newspaper food editors, special scripts to women's daytime broadcasters, disc jockeys, and telecasters. Illustrated articles appeared in magazines.

President Eisenhower wired the Committee his praise. His telegram read: "You have told me of the National Fish and Seafood Week Committee's plans for the fifth annual observance of Fish and Seafood Week. Commercial fishing has long made a vital contribution to the people's diet and to the national economy. As our population continues to grow, we will rely to an increasing extent on the bounty of the sea. On this occasion, it is a pleasure to salute the men and women of the American fishing industry."

Fish In Agriculture Book

Included in the recently issued Department of Agriculture Yearbook for 1959, "Food", is the story of fish and the fishing industry. Written by A. W. Anderson, assistant Director of the Bureau of Commercial Fisheries, it deals with the food aspects of fish and the activities of the Department of the Interior in behalf of the fishing industry and in the interest of the consuming public.

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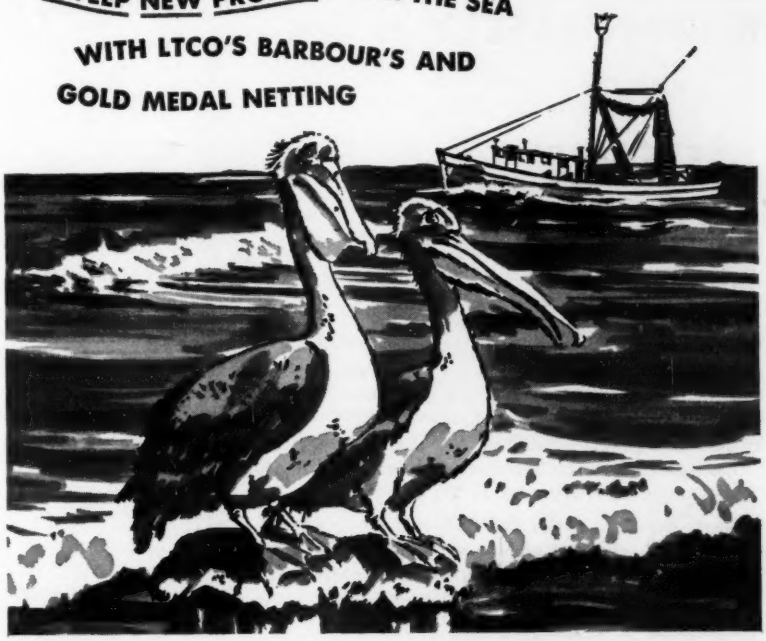

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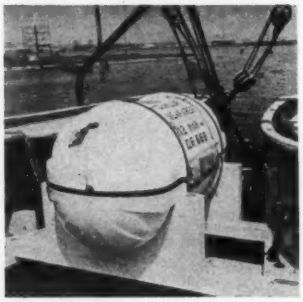

12-man Seafarer Life Raft in new Fiber Glass Stowage Container aboard New Bedford scalloper "Ursula M. Norton".

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Freezing Fish at Sea

(*Continued from page 12*)

Much of the groundfish landed in New England is marketed in the form of frozen fish fillets. The purpose of the *Delaware* project is to provide a source of high-quality raw material that could be stored ashore during glut periods and, as needed, be removed from the cold store, thawed and processed in the usual manner.

Fish frozen aboard the *Delaware* can be stored in the cold store in large boxes in lots of 500 pounds. Frozen storage charges are higher than those for packaged fish because of increased space needed and handling required to glaze the fish. If the fish are processed in small quantities, the boxes can be removed from storage the day prior to processing, and can be thawed overnight in a box flooded with a continuous stream of water.

Quality Aspects

Fish stored in ice aboard a vessel will remain at an acceptable quality for a relatively short time. The acceptable storage period for eviscerated haddock may vary from 8 to 16 days depending on handling, icing, and sanitation techniques. For successful freezing the quality of the thawed frozen fish must compare favorably with that of iced fish.

Twenty-seven tons of brine-frozen haddock from the *Delaware* were examined, processed, and marketed by 19 fish processors and dealers at various intervals. The fish were put into 0°F cold storage immediately after being unloaded. Samples of the fish were withdrawn at bi-monthly intervals and filleted.

The results showed that water thawed, brine-frozen haddock could easily be filleted and that the fillets were of good texture, flavor, and odor. They also compared favorably with iced fish in quality. These fillets were slightly darker than similiar fillets from iced fish, and they had lost the bright sheen of iced fish fillets. The darker color was not considered detrimental as much of the color bleached out during subsequent frozen storage.

The maximum acceptable storage period for the frozen fish was judged to be eight months. Subsequent laboratory tests conducted on fillets prepared from brine-frozen haddock verified the results. Other tests showed the average salt content of fillets prepared from such fish was less than 0.5 percent for both round and eviscerated. This would indicate that haddock can also be frozen at sea in the eviscerated form as well as in the round, unviscerated state.

Factors Affecting Costs

Whether or not freezing fish at sea is economically sound depends greatly on the nature of the fishery involved and other factors common to vessel and processing plant operation, and marketing techniques. Even though a process may be economically sound, unexpected equipment failures and labor or marketing problems can result in financial loss.

The *Delaware* was a commercial vessel converted to freezing on an experimental basis. A study of the economics of the operation would mean little, although much was learned that could be put to advantage in the design of a new freezer ship. Studies of the project indicate that conversion of an existing trawler for freezing is costly and in some cases not practical because of age and limitations on the freezing process inherent in the design of the boat. It is best to have a new vessel built that is designed specifically for freezing at sea.

The economics of freezing become more attractive as the harvesting ability of the vessel increases. An integrated vessel-plant operation would seem to offer the best possibility for financial success. In such an operation, where prior to freezing the plant only operated part time due to lack of fish, the financial gain due to full-time operation could be used to offset the high costs associated with vessel operations.

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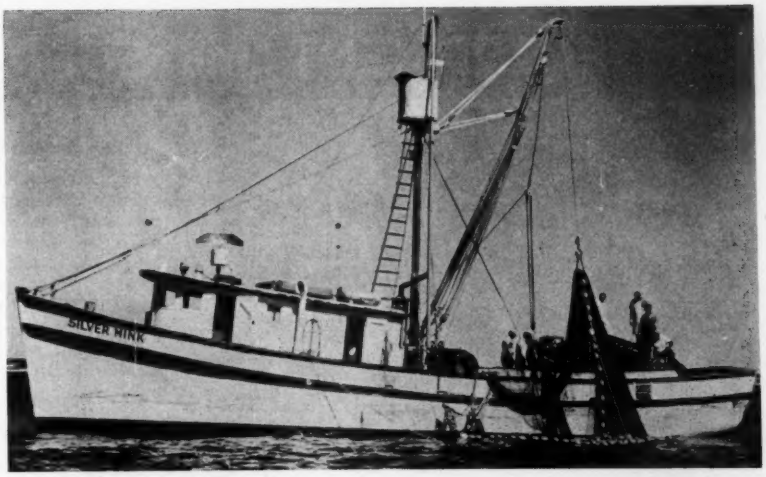
This top flight tuna fisherman uses a GM Model 6-110, 220 H.P. at 1800 R.P.M. with 4.5/1 Allison reduction gear to provide reliable power in this new technique of fishing.



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Dredge For Pacific Clams

(*Continued from page 9*)

orient last year by Moore, for example, have been disappointing, although the Eastern cherrystone appears to be adjusting well.

Since clams are extremely sensitive to their surroundings, slight differences in water temperature, salinity tolerance, even the ground composition, make it questionable whether new clams will or will not adjust. All the same, several years ago, the Japanese Manila clam stowed away with some imported oysters, and eventually became prominent in areas native to the little-neck, a variety generally preferred for commercial reasons.

Dr. Cedric E. Lindsey, supervisor of the Quilcene Shellfish Laboratory is greatly concerned with the condition of the barren clam beds also. It is his opinion that both clam seed on the ground and good cultivation are essential. Constant control of predators such as red crabs, moon snails, drills, birds, and starfish is necessary also.

The general idea of importing new clam seed, said Dr. Lindsey, is to discover a meaty and flavorful clam which will be suitable for growing on the pure mud and sand of the tidelands. Few varieties are found in the Puget Sound area which are able to successfuly maintain themselves in bottom of this type.

The greatest danger found in importing of clams is that they may carry parasites or disease which could seriously effect established native types. Further, much time is consumed before results are known in experiments with imports. These experiments may take upwards from six months to a year, before any definite findings are established.

In the event that all else fails, the men at Quilcene have another project up their sleeve—artificial propagation similar in scope to the hatchery program of rearing salmon. Preliminary experiments have proven successful and Dr. Lindsey believes it is now the time to put such a program into operation.

To this point, according to Moore, the dredges in Washington have worked in shallow waters only, while in the east there are models which are able to operate in deeper waters, as far as ten to 20 miles off-shore. The state will get into deep water soon he said, and will use skin divers to chart the bottom.

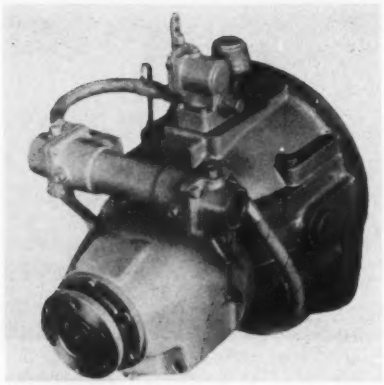
Harms, speaking about problems in the use of dredges, said the machines need further improvement and modification. The attitude of the public is another problem plaguing the experiments. "Some people think we are out there tearing up all the beaches. Really, we are improving them for future growth, just as any agricultural farmer works over his soil for his crops. If I did not believe that this has a great future, I would not bother with the work and the expense."

Harms, Moore, and Lindsey are not the only ones enthused over the potential industry buried under the offshore tidelands. Fletcher Hanks, who is credited by many with starting up all the activity with his hydraulic jet streams, is excited over the possibilities too. He feels that Washington offers a great opportunity for a $25,000,000 business.

Gardner P. Dynes, Columbian Rope

Gardner P. Dynes, formerly General Sales Manager of Columbian Rope Company, Auburn, N.Y., died October 6, at Auburn Memorial Hospital. Dynes retired from the Columbian Rope Company as General Sales Manager on March 1, 1958 after serving 41 years in the sales operations of the Company. He started with the organization in 1917 as a salesman out of the Chicago Branch and then the Auburn Office in 1927. He became Assistant Sales Manager in 1944 and in 1953 was appointed General Sales Manager. Mr. Dynes traveled extensively for the Company, and had a host of friends in all sections of the country.

EQUIPMENT and SUPPLY NEWS



Model 2 HD EC-8900 reverse-reduction gear for engines with applied torque under 320 ft. lbs. is made by Auto Engine Works.

New Capitol Gear for Limited Space

A new compact hydraulic gear series for work boats with limited engine space, requiring a low silhouette installation, has been announced by Auto Engine Works, Inc., 331 North Hamline Ave., St. Paul 4, Minn., as the latest addition to their Capitol line. These units are designed for small Diesels up to 175 hp. and larger automobile conversions.

Model 2 HD hydraulic direct drive gear is available with standard or heavy duty clutch. This unit has been tested at speeds up to 4,000 rpm. It incorporates the Capitol wet clutch system, case hardened bevel gears and independent lube system. Dry weight is approximately 160 lbs. The manufacturer states that the Model 2 HD gear is the shortest direct drive gear made to meet the requirements of limited installation space.

Model 2 HD EC-8900 reverse and reduction gear, second unit in the series, is adaptable to engines with applied torque under 320 foot lbs. It is available with a standard clutch only in ratios of 1½ to 1, 2 to 1, 2½ to 1 and 3 to 1. The gear permits changing from full forward to full reverse in just 2 seconds. Dry weight is approximately 230 pounds.

To date the 2 HD series has been adapted to the 4 and 6 cylinder Ford Diesel, the Cummins "J" Series, the 1955 Cadillac, Mercedes Benz OM-312 and GM 3-53 and 4-53 engines, as well as the Allis-Chalmers AC-273 and Caterpillar D-311 and D-315. Adaptations are being made for other popular engines also.

Sperry Small Radar Available

Sperry Radar 5 now is available at dealers throughout the country. This new small instrument, as well as a Radar 10, is part of a new marine product line by Sperry Piedmont Co., Charlottesville, Va., which includes radio direction finder, Loran, and autopilot.

The Radar 5, with its five-inch scope is a two-unit radar system. The antenna, which sends out the impulse that is echoed back, is mounted on the mast or topmost deck of the boat. It weighs only 38 pounds. The indicator, which displays the signal information, is installed near the helm. It has one and five-mile range scales, and is available for either 12 or 32 volt DC operation.

The Sperry Radar 5 has a cursor line that swings around the face of the radar scope and is superimposed on a target blip. The azimuth, or compass ring, on the radar scope is divided into red, white, and green areas, following marine regulations governing night running lights, so the operator knows which lights are exposed to oncoming boats.

Current shipments of the Radar 5, Radar 10, and portable Radio Direction Finder are being made through Triton Marine Products, Inc. 161 Great Neck Rd., Great Neck, N. Y.

Allis-Chalmers Marine Bulletin

Specifications for the complete line of Allis-Chalmers marine Diesels and Diesel generating sets are given in a new bulletin issued by Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

The Allis-Chalmers propulsion engines range from 85 to 516 hp. in six models, including the new D-273, 16000 and 21000. A chart gives bore and stroke sizes, displacement, weights, dimensions and rated output for maximum, light and heavy duty service. Marine type Allis-Chalmers Diesel generator sets range from 36 to 275 kw. in a broad range of voltages.

Chrysler Distributes for Pearce-Simpson

Chrysler Corporation's Marine and Industrial Engine Division has reached an agreement with Pearce-Simpson, Inc., Miami, Florida, to act as sole distributor in 50 states and Canada for that company's marine electronic products, according to recent announcements by the company.

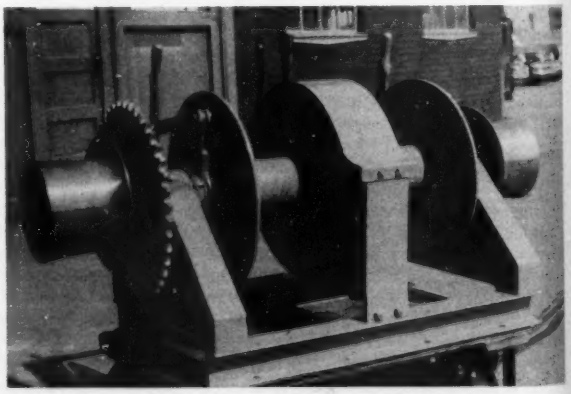
The 250 Pearce-Simpson sales outlets will be combined with the Chrysler network of franchised dealers and engine centers. The affiliation is expected to double sales outlets and increase market penetration. Pearce-Simpson will continue to devote its energies and efforts to the improvement and development of marine electronic products.

The agreement with Pearce-Simpson is another major step in the expanded marketing program of Chrysler M&I Engine Division. This program was launched last fall when the division announced a new plant location, expanded production facilities and a new engine center network. Four months ago the division also announced plans to market the German-built Deutz Diesel Engine in the United States.

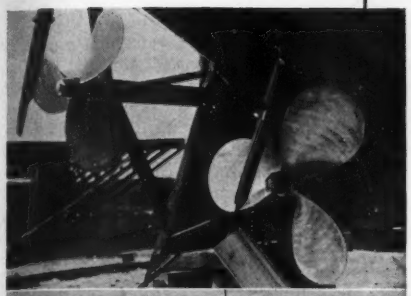
Hathaway Introduces Small Dragger Winch

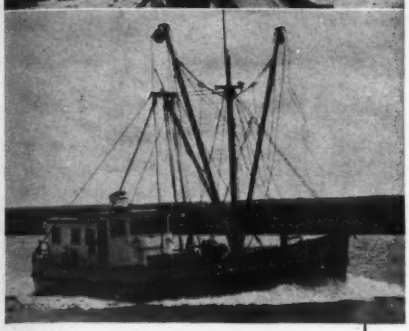
Hathaway Machinery Co., Inc., Fairhaven, Mass., has introduced two new models of its small dragger (up to 60 feet) trawl winch. Compact and rugged the new models weigh 1500 pounds. Known as Models 1459 and 1459X they have oversize drum shafts of special steel fitted in two babbitted thrust bearing frames mounted on 4 x 4 wide flange beams. The steel fabricated drums are babbitted the full length for bearings.

The new models feature quick action lever brakes and lever controls with bronze thrust discs. Left and right cam locks are assembled per specifications to release in direction of load. The cone clutch wood friction blocks are driven by cast iron friction. The units have 42 tooth



New Hathaway Model 1459 small dragger trawl winch has a base size of 46 x 33 inches and weighs 1500 pounds.





The "FRITZ K" built by North Boat Works, Rio Hondo, Texas, for A. W. Gerds, Brownsville, is equipped with 48"x 36" Michigan wheels.

more and more

COMMERCIAL BOAT OWNERS TURN TO MICHIGAN PROPELLERS

. . . as they observe how much longer, more economical service these fine performing wheels provide. It's due to the wonderful "MICHALLOY-K" from which they're cast . . . stronger than stainless steel, yet easily repaired when damaged . . . tremendously resistant to corrosion and will not pit even though your vessel lies idle over a long period of time. And you pay not ONE CENT EXTRA for it. BUY MICHIGAN. They're by far your best buy!

MICHIGAN WHEEL COMPANY

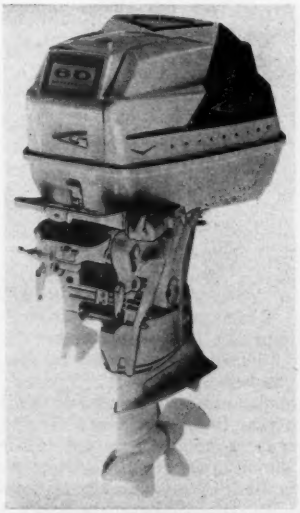
GRAND RAPIDS 2, MICHIGAN

LXS 627 steel sprocket, brake cover, and winch head.

Capacity for the Model 1459 ranges from 518 fathoms of 5/16" cable to 150 fathoms of 9/16" cable. The 1459X capacity ranges from 829 fathoms of 5/16" cable to 248 fathoms of 9/16" cable.

Gale Outboards Features 'Torpedo' Unit

Balanced V-power, and new styling highlight Gale Products' 1960 outboard line, featuring eleven models from 60 to 3 horsepower. The pacesetter of the Gale line, the V-Sovereign is a four-cylinder outboard embodying the latest aquadynamic engineering innovations in V-type motors.



Gale V-Sovereign 60 hp. electric outboard features "torpedo" underwater unit.

Chief among the innovations in operating efficiency offered by the V-Sovereign is the "torpedo" underwater unit, which incorporates a new gear design and ratio and adapts automatically to three, varied-pitch propellers. The "torpedo" is designed to reduce underwater "drag" or resistance, resulting in increased speed and load-pushing power. The choice of propellers permits owners to select a blade pitch designed to give maximum speed or torque or a highly versatile combination of both.

Sharing the Gale spotlight for '60 is the debut of the Buccaneer 15, an all-new, compact 15 hp. motor. The Buccaneer 15, the company reports, is designed to meet the growing demand for a low cost, highly portable motor. Completing the Gale line-up are nine other models headed by the Sovereign 35, plus Buccaneer models ranging in horsepower from 35 to 3.

Electric starting is standard on the V-Sovereign 60, Sovereign 35, and custom Buccaneer 25. Both the V-Sovereign and the Sovereign 35 are available with integral factory-installed generators also. In addition, the Buccaneer 35 and 25 hp. models, featuring automatic rewind rope starting, are designed for easy conversion to electric starting.

Other changes in the Gale line include automatic "cruising range" fuel miser, snap-on gravity-feed gas line, anti-friction steering, spring-balanced motor swivel bracket, thermostat controlled cooling system, and twin-barrel down-draft carburetor.

New Fiberglas and Plastics Guidebook

Fiberglas and plastic products for covering, repairing and protecting boats are described and illustrated in a new 16-page, pocketsize Guidebook just issued by Glass Plastics Corporation, 1605 West Elizabeth Ave., Linden, N. J.

Known as Consumers Catalog 202, and distributed by marine-supply dealers, it shows boat owners how to strengthen and leakproof hulls and decks; how to repair damaged areas; and how to protect exposed surfaces against abrasion and the elements.

Nearly 40 illustrations are included, as well as an interesting "Questions and Answers" page on Boat-Armor Fiberglassing. Products described and illustrated include: Blu-Sheen Fiberglas Cloth, Super Resin, Titan-Tite Repair Kits, Epoxy Adhesives, Epoxy Paints, and Urethane Racing & Brightwork Finish.

The "Ole", 67' shrimper owned by Ocean Products of Tampa, Fla., and powered with a 210 hp. General Motors Diesel turning a 50 x 44 Columbian propeller, was built by Diesel Engine Sales, Inc., St. Augustine, Fla. Included in the equipment are 1500 watt Petter Diesel light plant, Yocam batteries, Goodrich Cutless bearing, and 515½T Stroudsburg hoist.

Atomic Waste Disposal

(Continued from page 11)

sportsmen of redfish, speckled trout, flounder and drum. The total in pounds caught ran to approximately 37 million, which is about 34 million pounds more than the reported commercial catch. Because of the importance to management of total fishing effort information, it is hoped that within a few years the landing records for the Gulf states will contain commercial and sports catches.

There exists, within the commission's work plans, an Estuarine Technical Coordinating Committee, formed in April 1958, that is directed to make thorough studies of the effects of these man-made changes, with recommendations as what can and should be planned to permit harmless industrial and commercial progress.

Fisheries Training in Louisiana

A report of the fisheries training program as conducted by the coastal area vocational technical schools of Louisiana was presented at the meeting.

To reach the fishermen who are engaged in fishing, one phase of the training program is on an extension basis. Between fishing trips they can receive training in small craft operation and navigation, Diesel engine maintenance, basic laws of marine radio telephone, and preventative maintenance of outboard motors.

The other phase of the training program is on a long term basis. Trade preparatory courses are offered to sons of fishing families in their junior and senior years in high school as well as out-of-school youths. This training will enable them to become qualified boat operators thus making their life work less dangerous and at the same time raise the standard of living for their families.

The Fisheries Training Program has reached 420 fishermen in the coastal area of South Louisiana during 1958-1959. In addition to making the fishermen's life work safer it has proven valuable to them in securing jobs during the off season by being qualified boat operators.

The instructional materials for the course in Small Craft Operation and Marine Navigation is in the process of being developed. Unit I of the course includes Rules of the Road, Navigational Aids, and the Marine Compass. This material is estimated to be ready for publication by the end of June 1960. Unit II of the course includes Piloting, Dead Reckoning, and Off-Shore Navigation. This course material will be developed during 1959-1960.

Chesapeake Blue Crab Fishery

(Continued from page 13)

of baited, one-eighth inch line up to one mile long, with marking buoys and weights at each end. The bait, salted eel, tripe, or coarse fish, is tied to the line at intervals of two through five feet, but no hooks are used. The line, payed out from a moving boat, sinks to the bottom. Later, the crabber picks up the line and places it on a roller attached to the boat. As the boat moves forward, the line passes over the roller, and the crabs, clinging to the bait, are raised to the surface, dipped up with a long handled net and placed in barrels.

The crab pot is a cube-shaped trap with funnels through which the crabs may enter. The pots are placed in a line or series of lines in 15 to 40 feet of water. A bait chamber containing fresh fish is located immediately below a horizontal partition. The partition has two slits to allow the crabs to move to the upper chamber of the pot, where escape is difficult. Crabbers tend their pots every day, pulling each to the surface, emptying, rebaiting, and returning it to the water before going to the next. The crabs are placed in barrels or boxes for transportation to the crab house. In Chincoteague Bay in Virginia, hard crabs are also caught by a dredge. This dredge is very similar to an oyster dredge but has longer teeth. The scrape is similar to the dredge, but has no teeth.

Still another gear, the dip net, is of lesser importance commercially than the scrape. When using this gear a small skiff is poled along the shallows. The crabs are captured by a quick dipping motion of a long handled dip net and are placed in a basket or live well.

It is estimated that trotlines, crab pots and scrapes account for 97 per cent of all crabs taken in a commercial way in Maryland. Push nets, haul seines and crab fykes are also used to capture soft or peeler crabs, but these gears are used only to a limited degree and are of little consequence.

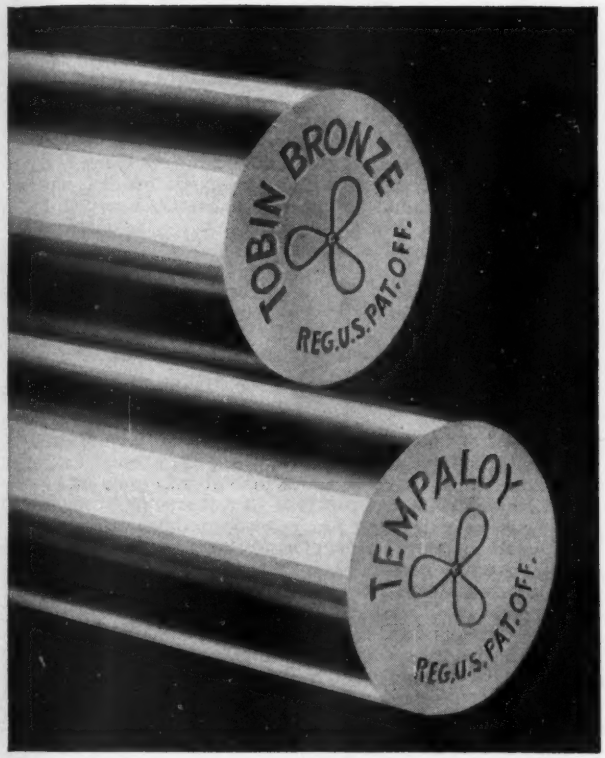
The perishability of crabmeat has long been a problem of the industry. Most freezing and holding techniques fall short of preserving quality intact. In 1951, a patent was granted to a Maryland packer for what could be called a pasteurization process. Under it, crab meat has been successfully held in cold storage for comparatively long periods. When improved preservation methods become general, the industry may achieve the stability it needs. Under present conditions, crabs that sell for $4, or less, per 100-pound barrel in July may bring $20, or more, in February.

A method for preservation of the meat by heating and sealing it in cans was patterned on the highly-successful oyster-canning industry of the mid-19th century, but as an enterprise it was short-lived. The canned article could not compare in flavor, appearance, or price with the fresh meat. As the production of the latter expanded, the former disappeared altogether. It was not until about 1938 that a method was first successfully introduced to can meat without loss of quality, a process protected by patent, with rights leasible.

Crab Life Cycle

Blue crab eggs are spawned in the late spring or early summer and are attached immediately to hairs on the underside or "apron" of the female crab. Crabs bearing masses of eggs are known as "sponge" crabs. Sponge crabs are often seen in Maryland waters near the Virginia line, but most spawning occurs in the saltier waters near the mouth of the Bay. The newly-hatched larval crabs require salty water, and for this reason, there is little or no survival of the early stages in Maryland waters. Sponge crabs have been imported to Maryland for the purpose of increasing the crab supply, but the effects have been negligible. In the lower Bay, the eggs hatch in 12 to 15 days and the tiny immature crabs are set free into the water. These early stages are exceedingly small and depend on the water current for movement. After shedding about six times, the tiny larval crab

SHAFTING THAT GETS YOU THERE—AND BACK



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Both Tobin Bronze and Tempaloy propeller shafts are available through leading marine supply distributors. For detailed information, see your distributor or write: The American Brass Company, Ansonia Division, Ansonia, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ontario, Canada. 598P

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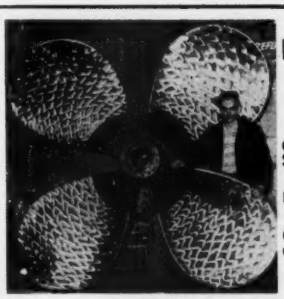
transform into a stage which resembles the adult in appearance.

These small crabs begin to migrate up the Bay and rivers, feeding and shedding until cold weather forces them into an inactive state on the bottom. In spring they resume their migrations up the Bay and its tributaries, feeding and shedding. Shedding takes place in protected locations such as grass, under submerged objects, etc. This occurs about 21 times after the crab passes the larval stages. The crab increases one-third in size at each molt as it changes from a peeler to a soft shell crab and back to a hard crab again.

Mating usually occurs in the late summer or early fall when the maturing females become soft for the last time. Males, however, mate more than once during the last three growth stages. Doubling occurs just prior to the final shedding of the female, when the male clasps her and carries her to a favorable shedding area. Here she casts off her shell and mating ensues immediately. The female then moves down the Bay toward the Capes. She retains the sperm over the winter and fertilization of the eggs takes place the following spring.

Crabs have numerous enemies including gulls, fish and man, yet the crab population seems to remain high in spite of these enemies. For one thing, the life cycle gives a crab population remarkable powers of recovery. Oysters, for example, require about three years to reach market size. Crabs, on the other hand, hatch one summer and reach maturity the next. Moreover, the environment of the Chesapeake Bay and its tributaries appears nearly ideal for crabs. Variation in salinity and conditions on grassy flats, sand bars, oyster bars and mud flats may affect the local abundance or scarcity of crabs, but these factors do not appear to affect the overall population. Changes in salinity or severe pollution may also affect the survival of immature crabs, particularly on the hatching grounds near the Capes, but again, adverse circumstances which occur in any one year have but a very temporary effect on the fishery.



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Fish Oils Fight Heart Ills Advisory Committee Told

A laboratory report on the depressant effects of fish oil on the cholesterol level of the blood stream (a cause of some heart disease) was released recently to the American Fisheries Advisory Committee which held its semiannual meeting at Old Point Comfort, Virginia, October 7-9.

The findings are a result of research projects on fish body oil conducted by the Bureau of Commercial Fisheries, Fish and Wildlife Service, and by the Hormel Institute of the University of Minnesota under a Bureau contract.

Relief for persons with high cholesterol levels in blood serum is indicated in (1) the abundance of "unsaturated" fatty acids in the body oils of many species of fish, and (2) proof that the feeding of these unsaturated fatty acids to test animals reduced the cholesterol levels in direct proportion to the degree of unsaturation.

A method of separating the highly unsaturated 10% body oil of most species of fish has been developed. The potential of this fish oil in reducing the cholesterol level is approximately three times that of vegetable oil.

Comments on the properties of fish and its by-products showed that research has proved that fish protein contains all the amino acids essential to the human body but that little is known about the other properties of fish protein; that research has measured the growth factor in fish meal used as feed for farm animals but knows little about the growth factors in fishery products used as human food; and that such things as the cholesterol discovery, will be of great benefit to human happiness and the cost of research will seem small.

Because of these facts and numerous others which were discussed, the Advisory Committee recommended to the Bureau of Commercial Fisheries, Fish and Wildlife Service, Department of the Interior, that a continuous research program be carried out for new secrets, new products, and new uses and that research learn everything possible about the protein, oil, and ash content of each of the 240 commercially important fish and shellfish and the thousand or more fishery products which are used by man. It urged that the fatty acids be given more study, that the quantity and types of vitamins, minerals and growth factors be studied thoroughly, and that basic research no longer be content with one phase but that it keep compiling data which might have future values.

Chesapeake—Mid-Atlantic Production

John F. Puncochar, director of region 3, Bureau of Commercial Fisheries, pointed out that the Middle Atlantic and Chesapeake Bay area, annually lands fish and shellfish valued at $61,000,000—about 17 percent of the total value of all fish and shellfish landings in the nation.

James B. Engle, director of the biological laboratory at Annapolis, Maryland, summarized three major problems of the oyster industry as the need for an increase in control of oyster predators, increase in the seed production, and the need to identify and control oyster diseases.

Dr. Benjamin H. Willier, director, Government-Industry Co-operative Research Program, reported on the progress of a team approach to the problem of determining satisfactory definitions and standards of identity for raw oysters, while Gerald H. Talbot, director, technological laboratory Beaufort, N. C. reported the sudden and large fluctuation in the supply of blue crabs needs research attention and announced a shift from shad to blue crab study.

Fred C. June, chief, menhaden investigations, Beaufort, N. C., reported on factors that influence the important menhaden fishery. The effect of man-made changes in the estuarine nursery grounds, the make-up of menhaden populations and the characteristics of the ocean environment that influence the behavior, distribution, and abundance of the fish were pointed out as projects needing study.

BOAT CATCHES

For Month of October

Hailing fares. Figure after name indicates number of trips.

SEATTLE (Halibut Fleet Fishery)

Addington (1)	23,200	Maddock (2)	29,900
Agnes O. (2)	40,800	Majestic (1)	13,400
Angeles (1)	16,000	Mermaid (2)	37,800
Anne (1)	14,400	Nanna (1)	16,200
Arne (1)	10,500	New Washington (1)	50,000
Bergen (1)	23,500	Nordic (1)	55,000
Bernice (1)	12,300	Norrona (1)	16,200
Bonanza (1)	36,000	Oceanus (2)	31,800
Brooks Bay (1)	87,000	Orbit (2)	32,200
California (2)	44,000	Pacific (1)	60,000
Constitution (1)	20,300	Polaris (1)	60,000
Ethel S. (2)	52,800	Presho (1)	7,000
Eureka (1)	6,600	Resolute (1)	43,000
Flying Tiger (1)	45,000	Satrania (1)	78,000
Gloria (1)	8,700	Sea Bird (2)	39,400
Ilene (1)	35,000	Shirley J. (1)	4,500
Inez M. (1)	20,500	Swift II (1)	9,000
J. B. (2)	34,200	Sylvia (2)	52,000
Leviathan (1)	17,700	Thor (1)	58,000
Lindy (1)	48,000	Trinity (2)	34,600
Lloyd (2)	50,200		

GLOUCESTER (Mass.)

Acme (8)	112,500	Malolo (2)	115,000
Admiral (1)	55,000	Manuel P. Domingoes (2)	295,000
American Eagle (8)	109,500	Margaret Marie (5)	14,500
Andrea G. (1)	113,000	Marinna II (5)	80,000
Anna Guarino (7)	23,500	Mary Ann (8)	149,500
Annie (3)	19,000	Mary Jane (1)	200,000
Anthony & Josephine (8)	133,000	Mary Rose (1)	25,000
Atlantic (2)	103,000	Morning Star (8)	224,000
Ave Maria (3)	16,500		
		Nancy & Maria (9)	74,500
Blue Waters (1)	60,000	Natale III (2)	83,000
Bonaventure (1)	15,000	Njorth (1)	2,000
Cape Cod (10)	86,000	Ocean Spray (2)	78,000
Carlo & Vince (8)	192,000	Olympia (3)	120,000
Cigar Joe (2)	48,000	Our Lady of Fatima (1)	180,000
Curlew (2)	300,000	Our Lady of Tears (3)	12,000
Dawn (11)	35,000	Pioneer (1)	1,000
Doris F. Amero (2)	48,000	P. K. Hunt (2)	34,000
Eddie & Lulu M. (2)	5,000	Regina Maria (1)	26,000
Edith L. Boudreau (1)	32,000	Rhode Island (7)	152,000
Emily H. Brown (1)	160,000	Rosalie S. (1)	23,000
Estrela (1)	210,000	Rose & Lucy (5)	134,500
Eva II (12)	39,500	Rosemarie (4)	65,500
Evelyn L. Brown (1)	230,000	Rosie & Gracie (6)	41,500
Falcon (6)	128,000	St. Anna Maria (7)	143,500
Flow (1)	280,000	St. Cabrini (4)	60,500
Frances R. (4)	42,000	St. John (1)	1,000
		St. John II (8)	19,500
Gaetano S. (2)	51,000	St. Joseph (4)	74,000
Giacoma (3)	4,000	St. Mary (7)	208,500
Gloucester (1)	11,000	St. Peter (6)	112,000
Golden Dawn (3)	7,500	St. Peter III (8)	121,500
Grace & Salvatore (2)	50,000	St. Providenza (12)	71,500
Gulf Stream (1)	190,000	St. Rosalie (1)	6,000
		St. Stephen (2)	7,500
Holy Name (5)	58,000	St. Terese (8)	137,000
		St. Victoria (4)	364,000
Immaculate Conception (6)	168,000	Salvatore & Grace (7)	133,000
Irma Virginia (2)	2,500	Sandra & Jean (1)	20,000
		Santa Lucia (11)	51,000
Jackie B. (9)	204,500	Sea Queen (1)	45,000
J. B. N. (2)	37,000	Sebastiana C. (8)	231,000
Jennie & Lucia (2)	34,000	Serafina N. (5)	72,000
Joseph S. Mattos (1)	180,000	Serafina II (6)	177,500
Judith Lee Rose (1)	235,000	Star of the Sea (1)	1,000
		Sunlight (1)	180,000
Kingfisher (2)	415,000	Theresa M. Boudreau (2)	400,000
		Tipsy Parson (3)	3,000
Lady of Good Voyage (2)	63,000		
Lady of the Rosary (6)	110,000	Villanova (1)	200,000
Linda B. (2)	6,500	Vincie N. (2)	56,000
Little Flower (7)	180,000	Virginia Ann (6)	20,500

WOODS HOLE (Mass.)

Agnes & Myrnie (1)	2,900	Joan & Ursula (1)	4,800
Angie & Irene (1)	20,600	Kelbarsam (3)	12,700
Annie Louise (1)	1,100	Lynn (2)	19,300
Arnold (5)	21,700	Madeline (4)	14,000
Bernice (3)	15,100	Minkette I (3)	13,500
Cap'n Bill III (2)	43,500	Morning Star (1)	1,800
Curlew (7)	35,200	Papoose (1)	800
Driftwood (1)	1,000	Reliance (1)	1,300
Friendship (1)	6,400	Southern Cross (1)	6,000
Gertrude D. (2)	24,100	Trina Lea (1)	1,300
Intrepid (1)	700	Viking (2)	1,800

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NEW BEDFORD (Mass.)

Admiral's Pride (1)	9,600	Laura A. II (2)	101,000
Adventurer (4)	91,400	Libby (3)	71,700
Agda W. (1)	14,500	Lorine III (2)	30,900
Althea (2)	48,300	Louis A. Thebaud (5)	93,400
Anastasia E. (2)	31,900		
Angie & Irene (2)	36,000	Major J. Casey (3)	57,000
Annie Louise (3)	26,600	Malvina B. (2)	35,800
Annie M. Jackson (3)	57,500	Marie & Katherine (3)	49,200
		Martha E. Murley (2)	29,800
Barbara M. (3)	59,200	Mary J. Landry (3)	62,000
		Mary Tapper (3)	73,700
Cap'n Bill II (2)	46,900	Midway (2)	80,200
Cap'n Bill III (1)	22,200	Miriam A. (2)	43,300
Capt. Deebold (2)	46,000	Molly & Jane (4)	87,000
Carl Henry (2)	57,500		
Catherine & Mary (3)	74,500	Nancy L. (2)	21,500
Charles E. Beckman (2)	36,300	New England (1)	16,000
Christina J. (2)	75,500	North Sea (3)	53,300
Christine & Dan (2)	36,100		
Comber (4)	42,100	Pauline H. (3)	155,500
Connie F. (3)	45,700	Phyllis J. (2)	30,000
		Princess (1)	18,000
Eugene H. (3)	96,500		
		Roann (2)	37,000
Falcon (3)	70,000	Robert Joseph (3)	67,800
Friendship (2)	46,300	Roberta Anne (2)	56,200
		Rush (4)	114,000
Gannet (1)	28,500		
Glen & Maria (3)	75,900	Sea Gold (2)	34,800
Growler (3)	76,700	Shannon (4)	52,000
		Sharon Louise (2)	49,300
Harmony (2)	38,300	Smilyn (2)	49,300
Hope II (3)	61,000	Solveig J. (3)	131,500
		Sunbeam (2)	37,000
Invader (2)	64,300	Susie O. Carver (3)	43,500
Ivanhoe (2)	30,500		
		Teresa & Jean (2)	52,000
Janet & Jean (1)	17,800	Two Brothers (3)	20,300
Joan & Ursula (2)	31,800		
John G. Murley (2)	83,500	Valiant Lady (2)	49,300
Julia DaCruz (3)	45,200	Venture I (2)	68,400
		Viking (3)	119,000
Katie D. (2)	99,000		
		Whaler (3)	77,200

Scallop Landings (Lbs.)

Abram H. (2)	14,200	Lauren Fay (2)	22,000
Aloha (2)	23,400	Lawrence B. (1)	11,200
Alpar (1)	12,200	Lillian B. (2)	18,700
Amelia (1)	11,200	Linus S. Eldridge (2)	22,400
		Louise (3)	36,600
Babe Sears (2)	21,200	Lubenray (2)	20,200
Baltic (2)	22,400		
Barbara & Gail (2)	22,400	Malene & Marie (2)	23,400
B. Estelle Burke (2)	22,400	Mary Ann (2)	22,400
Bobby & Harvey (2)	23,400	Mary J. Hayes (2)	22,400
Brant (2)	16,200	Moonlight (2)	23,200
Bright Star (2)	22,400		
		Nancy Jane (2)	22,400
Camden (2)	22,400	Neptune (3)	34,600
Carol & Estelle (2)	22,400	New Bedford (2)	22,400
Catherine B. (2)	15,800	Newfoundland (2)	19,600
Catherine C. (2)	24,600	Noreen (2)	22,200
Charles S. Ashley (2)	23,400		
Clipper (2)	20,900	Pearl Harbor (2)	22,200
		Pelican (2)	23,400
Dartmouth (2)	22,400	Polaris (1)	5,000
Debbie Jo-Ann (2)	22,700	Porpoise (2)	22,400
Doloris (1)	11,200		
		Richard Lance (2)	22,400
Edgartown (2)	24,800	Ruth Lea (2)	22,400
Eleanor & Elsie (2)	22,400	Ruth Moses (2)	22,000
Elizabeth N. (2)	22,400		
		Sandra Jane (3)	36,600
Fairhaven (2)	23,400	Sea Ranger (2)	14,500
Flamingo (2)	22,400	Sippican (4)	38,200
Fleetwing (2)	23,800	Snoopy (2)	23,400
Florence & Lee (3)	36,600	Stanley B. Butler (2)	23,400
Florence B. (1)	11,200	Stanley M. Fisher (2)	22,400
		Stephen R. (2)	18,500
Geraldine (4)	43,000		
		Toscin (2)	22,400
Hilda Garston (3)	36,600		
		Ursula M. Norton (3)	27,400
Jerry & Jimmy (2)	23,400		
Josephine & Mary (1)	11,200	Villa-Riall (2)	22,400
		Vivian Fay (1)	12,200
Kingfisher (2)	22,400		
		Wamsutta (1)	11,200
Laura A. (2)	22,400	Whaling City (2)	22,400

PORTLAND (Me.)

Alice M. Doughty II (4)	70,000	Lawson (2)	124,000
Andarte (2)	100,000	Mary & Helen (6)	4,300
Ariel (6)	26,500	Mascot (11)	12,600
Bobby & Jack (1)	84,000	Ocean Life (2)	520,000
Bois Bubert (1)	500	St. George (2)	365,000
Cigar Joe (1)	4,000	Theresa R. (2)	244,000
Courier (2)	174,000	Vagabond (1)	30,000
Dorchester (2)	350,000	Vandal (2)	120,000
Dorothy & Ethel (1)	3,000	Voyager (3)	81,000
Dorothy & Ethel II (1)	11,000	Wawenock (3)	575,000
Elinor & Jean (3)	40,000	Winthrop (2)	345,000
Gulf Stream (1)	190,000		

Scallop Landings (Lbs.)

Francis L. MacPherson (1)	11,000	Sylvester F. Whalen (1)	11,000

BOSTON (Mass.)

Agatha (3)	78,900	Michigan (3)	254,500
Agatha & Patricia (1)	30,300	Minnie (3)	241,900
Arlington (3)	206,600	Mother Frances (1)	21,600
Atlantic (3)	116,400		
		Nautilus (2)	62,500
Baby Rose (3)	252,800	Nellie P. (2)	15,200
Bonaventure (3)	205,500	New Star (2)	164,000
Bonnie (3)	294,900	Notre Dame (3)	66,300
Buzz & Billy (3)	58,000		
		Ohio (1)	59,200
Cambridge (2)	156,500	Olympia La Rosa (3)	61,400
Caracara (2)	50,500		
Carmen & Vince (3)	78,200	Pam Ann (2)	104,900*
Charlotte M. (2)	70,900	Patty Jean (2)	152,200
Clipper (4)	93,100	Phantom (2)	159,800
Columbia (3)	112,400	Philip & Grace (2)	147,000
Comet (2)	106,000	Plymouth (2)	105,400
Dolphin (2)	52,600	Racer (2)	158,700
		Red Jacket (2)	185,000
Eagle (3)	223,800	Regina Maria (2)	157,500
Ethelena (4)	111,100	Rosa B. (3)	225,000
		Rosie (3)	32,600
Flying Cloud (3)	328,700		
Four (2)	95,700	St. Angelo (2)	30,000
		St. Joseph (1)	38,000
Gloucester (1)	20,400	St. Marco (2)	36,600
Grace & Salvatore (1)	80,000	St. Nicholas (3)	207,000
		St. Rosalie (2)	83,200
Heroic (2)	127,700	Salvatore (2)	4,600
Holy Family (1)	62,200	Sea Queen (1)	23,000
		Star of the Sea (1)	6,700
Jane B. (2)	85,700	Sunlight (2)	53,500
J. B. Junior (2)	96,300	Swallow (3)	197,800
J. B. N. (1)	51,800	Sweet Sue (1)	13,400
Jeanne D'Arc (2)	23,300		
Joseph & Lucia (3)	180,200	Terra Nova (2)	124,200
Josephine P. II (3)	79,000	Texas (2)	76,000
		Thomas D. (3)	40,900
Katie D. (1)	52,700	Thomas Whalen (2)	69,300
Leonard & Nancy (2)	46,600	Villanova (3)	77,400
Magellan (3)	61,100	Weymouth (2)	128,500
Manuel F. Roderick (2)	91,900	Wild Duck (3)	220,500
Mary & Joan (2)	74,900	Wm. J. O'Brien (2)	104,600
Mary Rose (1)	68,800	Winchester (3)	225,000
Medan (2)	125,000	Wisconsin (2)	188,400

NEW YORK

Andrea G. (1)	26,000	North Cape (2)	49,000
Austin W. (4)	75,800	Powhatan (1)	10,000
Evelina M. Goulart (2)	38,500	Resolute (1)	15,000
Lawson (1)	2,500	Santa Maria (4)	145,000

Scallop Landings (Lbs.)

Beatrice & Ida (1)	11,000	Felicia (2)	22,000
Carol-Jack (2)	20,000	Karina T. (2)	22,000
David A. (1)	11,000	Muskegon (1)	10,000
Enterprise (2)	22,000	Phyllis J. (2)	16,100

ROCKLAND (Me.)

Araho (1)	88,000	Mabel Susan (3)	72,900
Brighton (2)	280,000	Margaret Jean (1)	35,000
Elin B. (3)	92,500	Myrt II (1)	15,000
Ethel B. (2)	6,000	Ocean (1)	290,000
Flo (3)	160,200	Squall (1)	290,000
Helen Mae II (2)	61,000	Storm (1)	290,000
John J. Nagle (1)	90,000	Surf (2)	560,000
Little Growler (2)	73,000	Tide (2)	570,000
Louise G. (2)	51,500	Wave (1)	280,000

Scallop Landings (Lbs.)

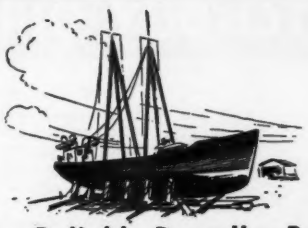
Pocahontas (2)	22,000

Fisheries Year-Book & Directory, 1959

Continuous expansion of the world's catches and output of fish products is shown in the 1959 edition of the annual reference book, Fisheries Year-Book & Directory, 1959. Comprehensive reports are given on developments in every branch of the industry, and the distribution of fish and fish products.

Progress in fish freezing, curing and packaging are dealt with in two chapters. The results of research in fishing and fish preservation are the subject of two official reports. The review of fishing vessel construction and equipment describes outstanding new fishing vessels built last year. For the first time, developments in life-saving equipment have been added.

The Fisheries Year-Book & Directory 1959 is published by British-Continental Trade Press, Ltd., 222 Strand, London, W.C. 2.



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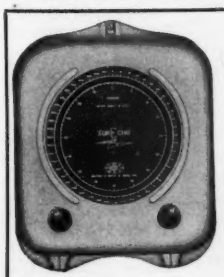

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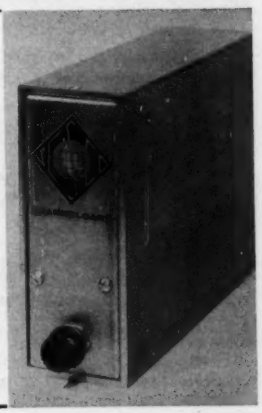

WHERE-TO-BUY DIRECTORY

ADHESIVES
Glass Plastics Corp., 1605 W. Elizabeth Ave., Linden, N. J.

ANCHORS
Danforth Anchors, 2121 Allston Way, Berkeley, Calif.
"Northill": Air Cruisers Div., Garrett Corp., Belmar, N. J.

ANTIBIOTICS
American Cyanamid Co., 30 Rockefeller Plaza, New York 20, N. Y.
Chas. Pfizer & Co., Inc., 630 Flushing Ave., Brooklyn 6, N. Y.

BATTERIES
Bowers Battery & Spark Plug Co., Box 1262, Reading, Pa.
Crescent Battery & Light Co., Inc., 819 Magazine St., New Orleans 12, La.
Exide Industrial Division—The Electric Storage Battery Co., P. O. Box 8109, Rising Sun & Adams Aves., Philadelphia 20, Pa.
Mule Battery Mfg. Co., 45 River Ave., Providence 8, R. I.
Surrette Storage Battery Co., Salem, Mass.

CANS
Continental Can Co., 100 E. 42nd St., New York, N. Y.

CLOTHING
A. J. Tower Co., 24 Simmons St., Boston, Mass.
United States Rubber Co., Rockefeller Center, New York, N .Y.

COLD STORAGE
Quaker City Cold Storage Co., Philadelphia, Pa.

COMPASSES
John E. Hand & Sons Co., Atlantic & Washington Avenues, Haddonfield, N. J.
Marine Compass Co., Pembroke, Mass.
E. S. Ritchie & Sons Inc., Pembroke, Mass.
Wilfrid O. White & Sons, Inc., 178 Atlantic Ave., Boston 10, Mass.

CORDAGE
Bob Stone Cordage Company, Chariton, Iowa.
Cating Rope Works, Inc., Maspeth, N. Y.
Columbian Rope Co., Auburn, N. Y.
The Edwin H. Fitler Co., Philadelphia 24, Pa.
New Bedford Cordage Co., 131 Court St., New Bedford, Mass.

DEPTH SOUNDERS
Bendix Aviation Corp., Pacific Div., 475 Fifth Ave., New York 17, N. Y.
Edo Corporation, College Point, L. I., N. Y.
Radiomarine Products, a Division of RCA, 75 Varick St., New York 13, N. Y.
Raytheon Manufacturing Co., 138 River St., Waltham 54, Mass.
Wilfrid O. White & Sons, Inc., 178 Atlantic Ave., Boston 10, Mass.

DIESEL TESTING EQUIPMENT
Kiene Diesel Accessories, Inc., 10352 Pacific Ave., Franklin Park, Ill.

DIRECTION FINDERS
Bludworth Marine, 1500 Main Ave., Clifton, N. J.
Radiomarine Products, a Division of RCA, 75 Varick St., New York 13, N. Y.
Raytheon Manufacturing Co., 138 River St., Waltham 54, Mass.

ELECTRIC GENERATING PLANTS
D. W. Onan & Sons, Inc., University Ave., S.E. at 25th, Minneapolis 14, Minn.

ENGINES—Diesel
Allis-Chalmers, Buda Division, 1135 S. 70th St., Milwaukee 1, Wisc.
American MARC Inc., 1601 W. Florence Ave., Box 549, Inglewood, Calif.
Burmeister & Wain American Corp., Lathrop Engine Div., Mystic, Conn.
Caterpillar Tractor Co., Peoria, Ill.
Cummins Engine Co., Columbus, Ind.
Detroit Diesel Engine Div., General Motors Corp., 13400 W. Outer Drive, Detroit 28, Mich.
Enterprise Engine & Machinery Co., 18th and Florida Sts., San Francisco 10, Calif.
Fairbanks, Morse & Co., Chicago, Ill.
Ford Marined Engines, Osco Motors Corp., 3627 N. Lawrence St., Philadelphia 40-AF, Pa.
Gray Marine Motor Co., 646 Canton Ave., Detroit, Mich.
Hercules Motors Corp., 101 Eleventh St., S.E., Canton, Ohio
Hubbs Engine Co., 1168 Commonwealth Ave., Boston 34, Mass.
Lister-Blackstone, Inc., 42-32 21st St., Long Island City 1, N. Y.
H. O. Penn Machinery Co., Inc., East River and 140th St., New York, N. Y.
Perkins Machinery Co. Inc., Exit 53 Route 128, Needham Hts., Mass.; 4 Water St., Fairhaven, Mass.
Petter Engine Div., Orenda Industrial, Inc., 34-14 58th St., Woodside 77, N. Y.
Red Wing Marine Corp., Red Wing, Minn.
Waukesha Motor Co., Waukesha, Wisc.
White Diesel Engine Division, White Motor Co., Springfield, Ohio.

ENGINES—Gasoline
Burmeister & Wain American Corp., Lathrop Engine Div., Mystic, Conn.
Marine Engine Division, Chrysler Corp., 12200 E. Jefferson Ave., Detroit 15, Mich.
Ford Marined Engines, 3627 N. Lawrence St., Philadelphia 40-AF, Penna.
Gray Marine Motor Co., 646 Canton Ave., Detroit, Mich.
Norseman Marine, 105 Nevada St., Oshkosh, Wisc.
Red Wing Marine Corp., Red Wing, Minn.

ENGINES—Outboard
Evinrude Motors, 4670 N. 27 St., Milwaukee 16, Wis.
Johnson Motors, 6300 Pershing Rd., Waukegan, Ill.

FISH KNIVES
R. Murphy Co., Ayer, Mass.

FISHING GEAR
The Harris Co., Portland, Me.
Marine Construction & Design Co., 2300 Commodore Way, Seattle 99, Wash.
Westerbeke Fishing Gear Co., Inc., Fish Pier Road, Boston 10, Mass.

FLARE SIGNALS
Kilgore Inc., International Flare Signal Div., Westerville, Ohio

FLEXIBLE HOSE LINES
Aeroquip Corp., 300 South East Ave., Jackson, Mich.

FLOATS
Dale Plastics Corp., 5736 12th St., Detroit 8, Mich.
J. H. Shepherd Son & Co., Elyria, Ohio.
B. F. Goodrich Sponge Products Division, Shelton, Conn.
The Linen Thread Co., Inc., Blue Mountain, Ala.

GENERATING SETS
Allis-Chalmers, Buda Division, 1135 S. 70th St., Milwaukee 1, Wisc.
Winpower Mfg. Co., Newton, Iowa

GENERATORS
Safety Industries, Inc., Box 904, New Haven 4, Conn.
Winpower Mfg. Co., Newton, Iowa

HOOKS
O. Mustad & Son, Oslo, Norway.
"Pflueger": Enterprise Mfg. Co., 110 Union St., Akron, Ohio.

INSULATION
"Styrofoam" (Expanded Dow Polystyrene): The Dow Chemical Co., Midland, Mich.

LIFE RAFTS
"Seafarer": Capt. A. J. Pedersen, 9 Ricker Park, Portland, Me.

LORAN
Edo Corporation, College Point, L. I., N. Y.
Radiomarine Products, a Division of RCA, 75 Varick St., New York 13, N. Y.

MOTOR GENERATORS
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W. A. Augur, Inc., 54 Beekman St., New York 38, N. Y.
The Fish Net & Twine Co., 933 First St., Menominee, Mich.
Hope Fish Netting Mills, Inc., Hope, R. I.
The Linen Thread Co., Inc., Blue Mountain, Ala.
Moodus Net & Twine, Inc., Moodus, Conn.
Marlon, 1453 West 123rd St., Los Angeles 47, Calif.
Joseph F. Shea, Inc., East Haddam, Conn.
A. M. Starr Net Co., 10 Summit Street, East Hampton, Conn.
Western Trawl & Supply Co., Freeport, Texas

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Gulf Oil Corp., Gulf Bldg., Pittsburgh, Pa.
Socony Mobil Oil Co., Inc., Marine Sales Dept., 26 Broadway, New York 4, N. Y.
Standard Oil Co. of California, Standard Oil Bldg., San Francisco, Calif.

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Henderson & Johnson, Inc., Gloucester, Mass.
International Paint Co., Inc., 21 West St., New York, N. Y.
Pettit Paint Co., Belleville, N. J.
Tarr & Wonson Ltd., Gloucester, Mass.
C. A. Woolsey Paint & Color Co. Inc., 205 East 42nd St., New York 17, N. Y.

PRESERVATIVES
Robeson Preservo Co., 214 Merchant St., Port Huron, Mich.

PROPELLERS
Columbian Bronze Corp., Freeport, N. Y.
Federal Propellers, Grand Rapids, Mich.
Ferguson Propeller and Reconditioning Co., 1132 Clinton St., Hoboken, N. J.
Michigan Wheel Co., 1501 Buchanan Avenue, S. W., Grand Rapids, Mich.

PROPELLER RECONDITIONING
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Ferguson Propeller and Reconditioning Co., 1132 Clinton St., Hoboken, N. J.

PROPELLER REPAIRS
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Ferguson Propeller and Reconditioning Co., 1132 Clinton St., Hoboken, N. J.
Haskell & Hall, Inc., 36 Webb St., Salem, Mass.

PROPELLER SHAFTS
The American Brass Co., Waterbury 20, Conn.
The International Nickel Co., Inc., 67 Wall St., New York 5, N. Y.

PUMPS
Brodeur Machine Co., Inc., Pump Div., 63 Wood St., New Bedford, Mass.
Jabsco Pump Co., 2031 N. Lincoln St., Burbank, Calif.
Sudbury Laboratory, South Sudbury, Mass.

RADAR
Bendix Aviation Corp., Pacific Div., 475 Fifth Ave., New York 17, N. Y.
Decca Radar Inc., 539 West 25th St., New York 1, N. Y.
Edo Corporation, College Point, L. I. N. Y.
Lavoie Laboratories, Inc., Morganville 16, N. J.
Radiomarine Products, a Division of RCA, 75 Varick St., New York 13, N. Y.

RADIO MONITORS
Sesco, Inc., 47 Nichols Ave., Friday Harbor, Wash.

RADIO TELEPHONES
Applied Electronics Co., Inc., 213 E. Grand Ave., South San Francisco, Calif.
Bludworth Marine, 1500 Main Ave., Clifton, N. J.
Kaar Engineering Corp., 2915 Middlefield Rd., Palo Alto, Calif.
Radiomarine Products, a Division of RCA, 75 Varick St., New York 13, N. Y.

RANGES—Galley
"Shipmate"—Shipmate Stove Division, Souderton, Pa.
"Shipmate" and "Webbperfection" — Elisha Webb & Son Co., 136 S. Front St., Philadelphia 6, Pa.
Harry C. Weiskittel Co., Inc., 4901 Pulaski Highway, Baltimore 24, Md.

REDUCTION GEARS
Auto Engine Works, Inc., 333(A) North Hamline Ave., St. Paul 4, Minn.
Paragon Gear Works, Inc., 628 Cushman St., Taunton, Mass.
Snow-Nabstedt Gear Corp., Welton St., Hamden, Conn.
Twin Disc Clutch Co., 1341 Racine St., Racine, Wis.
The Walter Machine Co., Inc., 84 Cambridge Ave., Jersey City 7, N. J.

RUST PREVENTIVES
Sudbury Laboratory, South Sudbury, Mass.

SEARCHLIGHTS
The Carlisle & Finch Co., 4562 W. Mitchell Ave., Cincinnati 32, Ohio

SHIPBUILDERS
Anderson Boat Works, Thomaston, Me.
Blount Marine Corp., Warren, Rhode Island.
Diesel Engine Sales Inc., St. Augustine, Fla.
Harvey F. Gamage, So. Bristol, Maine.
Gladding-Hearn Shipbuilding Corp., 1 Riverside Ave., Somerset, Mass.
Lash Brothers Boat Yard, Friendship, Me.
Newbert & Wallace, Thomaston, Me.
Frank L. Sample & Son, Inc., Boothbay Harbor, Me.
Story Marine Railway, 257 Front St., So. Portland, Me.

STARTING FLUID
Spray Products Corp., P. O. Box 844, Camden 1, N. J.

STEERING GEAR
Crowell Designs, Inc., 2106 Bridge St., Point Pleasant, N. J.

STERN BEARINGS
Byron Jackson Tools, Inc. 1900 E. 65th St., Los Angeles 1, Calif.
"Goodrich Cutless": Lucian Q. Moffitt, Inc., Akron 8, Ohio.

TWINE
Brownell & Co., Inc., Moodus, Conn.
Columbian Rope Co., Auburn, N. Y.
Andrew Crowe & Sons, Inc., Tiogue Ave., Coventry, R. I.

VOLTAGE REGULATORS
Safety Industries, Inc., Box 904, New Haven 4, Conn.

WINCHES
Hancock Marine, 1567 No. Main St., Fall River, Mass.
Hathaway Machinery Co., Inc., New Bedford, Mass.
Stroudsburg Engine Works, 62 North 3rd St., Stroudsburg, Penn.

WIRE ROPE
American Steel & Wire Division, United States Steel, Rockefeller Bldg., 614 Superior Ave., Cleveland 13, Ohio.
Hackensack Cable Corp., 110 Orchard St., Hackensack, N. J.
John A. Roebling's Sons Corp., Trenton 2, N. J.
Wickwire Spencer Steel Division of The Colorado Fuel & Iron Corp., Palmer, Mass.

FOREIGN BAILINGS

A JAPANESE SHIPYARD has completed studies and plans of a new type, tuna longliner that will carry over ten percent more fish than previous types of the same size.

The study was made with the prospects of excess salmon fishermen entering the tuna fishery, resulting from the reorganization of the North Pacific fishery. Also, the price for tuna boat construction per ton has risen very high. Therefore, builders are seeking designs that give a high carrying capacity in proportion to their gross tonnage.

STERN-TYPE TRAWLER number four has been placed in service by West Germany. The new trawler is reported to be an improved version of the original, the *Heinrich Meins*.

The ship is powered by a 1,650 hp. Diesel driving conventional propellers. Its cruising speed is stated at 15 knots.

Its measurements are 220.6 feet long bp., 31.5 feet moulded depth to main deck, and 23.5 feet to the second deck. Capacity is 280 tons of fish.

The boat has a separate refrigerated hold to store frozen fish. It is equipped with fish processing and freezing equipment.

FOUR FISH FLOUR PLANTS may be established in Mexican ports soon. A Japanese company has proposed to invest 25 to 30 million dollars to build a chain of plants in Mexican ports for the production of fish flour. The proposition is now being considered by the Mexican government.

ARCTIC CHAR, a centuries old staple of the Eskimo diet, is about to join other quick-frozen seafood delicacies. The char is found only in the Arctic waters.

The first fresh-frozen char was marketed in Southern Canada last year, and is now available only in certain quality restaurants of central Canada. Char has been marketed before, in a salted state which hid the flavor, and proved to be unpopular.

HELICOPTERS LOCATE FISH for Russian fishermen. Soviet scientists have developed an ultrasonic method for locating schools of fish from helicopters that is faster and more accurate than the visual or acoustic methods using shipboard instruments.

To locate herring, anchovies, and other fish, the helicopter hovers about 50 feet over the water, and a microphone is lowered into the water on a wire.

Thirteen to 20 feet above the microphone a streamlined float is attached. The wire leads from the float to a depth sounding instrument in the helicopter.

Interpretation of the received, ultra-sonic signals yields the size and shape of the fish schools, their depths, and the species of fish.

A RESIN-LIKE SUBSTANCE from fish oils has been developed by the Japanese. Experiments have shown that chlorination of fish oil results in the formation of a resin-like substance which seems to be a promising main ingredient for varnish-like coatings.

SOVIETS TO INCREASE FLEET of larger fishing vessels fivefold. The Russian telegraph bureau, Tass, states that the Soviet Union, within the framework of the current five-year plan, expects to enlarge five times, the number of large boats in its fishing fleet.

By 1963 there is to be built a number of factory trawlers, 279 feet long, weighing 3,500 gross tons, with an action radius of 60 to 80 days. The freezing capacity of the trawlers will be 30 tons of ocean fish each 24 hours.

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Ross coolers water to water, Model 860: $375.00 each
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2-71 GM heads complete with valves: $100.00 each
Fulton Sylphon valves 3", 4" or 5" with capillary tubes: $225.00, $250.00, $275.00 each
6-71 lube oil pumps: $20.00 each
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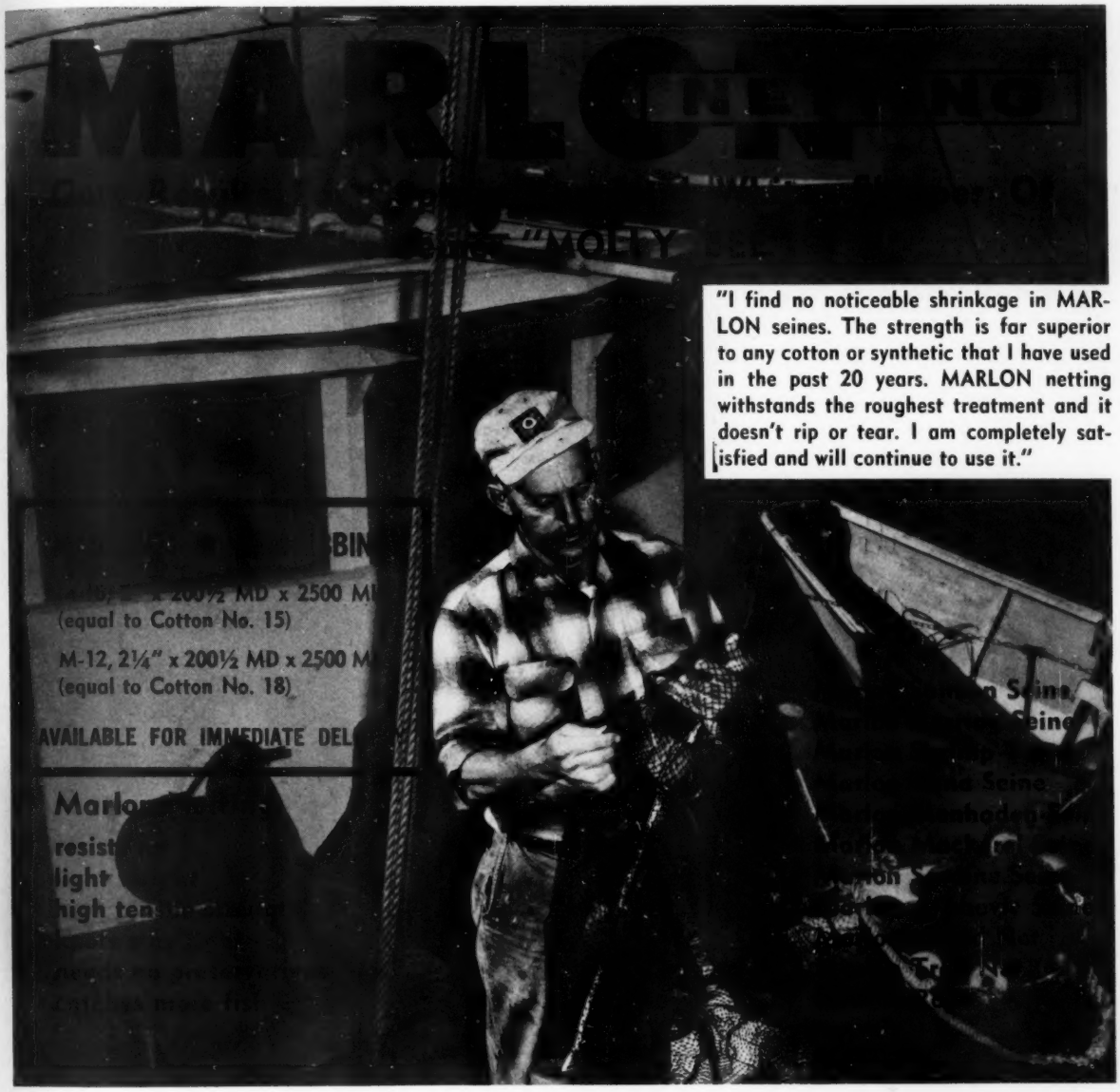

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A smaller but equally rugged version of the MG-512

In the short space of two years the Twin Disc MG-512 has become the most popular reverse and reduction gear in its horsepower class. The excellent performance of this unit has created a growing demand for a gear of similar design to work behind smaller engines.

To meet this demand, Twin Disc engineers have developed a new marine gear—the MG-508. It incorporates the basic quality features responsible for the MG-512's success. Here are some of them:

- **Exclusive metering-type control valve actuates forward and reverse clutches hydraulically . . . assures fast, smooth response at the touch of a finger.**
- **Clutches are constantly flooded with oil to carry away heat and reduce clutch plate wear.**
- **Exclusive rubber block input drive compensates for possible engine and marine gear misalignment.**
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- **Both clutches can be removed for servicing without pulling gear from engine.**

Recommended for use with these engines:

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- Caterpillar D318, D326, D339
- Cummins JNS, HRS, NH, NTO
- General Motors 4-71, 6-71 (Both new and war surplus)
- Murphy BAB-128, CAA-133, CAB-144
- Waukesha 135, 148 (NA)

Three optional driving rings permit replacement without flywheel modification of older model Twin Disc Marine Gears including the widely-used Twin Disc X8708 war surplus gear. Ratios: 1.47:1, 2.04:1, 2.95:1 and 3.39:1.

For full details and specifications on the MG-508 write Twin Disc Clutch Company, Racine, Wis. Request Bulletin 319-08.

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